

A Database Publication

ATARI USER

Vol. 2 No. 7 November 1986 £1

Inside
this
issue



**Video to
micro: The
missing link
arrives**



Simple steps to brighter backgrounds

Build your own musical keyboard

Illuminations: A game of strategy

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Abstract

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THE DUNGEON

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 City, should a mystery. There, the advertisement said, that that kind of
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 time, make you the pleasure of your neighbors. You prefer books with number-
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DataSoft

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video: The
mixing link
and more

Vol 2 No 7 November 1989

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£25 for you!

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Euro link set up

ATARI users can now have instant access to Europe's most influential database thanks to a new permanent electronic link to Luxembourg.

It has been set up by MicroLink in conjunction with the EC's Directorate General for Information Market and Innovation.

The venture provides a direct link between the main MicroLink computer and that of Eurocofline, which is part of a far-reaching project by the European Commission to create a 'Common Market of Information'.

And it means that MicroLink now has access to more than 600 European databases.

New databases available to MicroLink users here, through the European link, contain information from thirty sources which are not available through any other online host.

They range from facts on research projects, reports and organisations to an online directory to help find the right hardware and software.

Among the facilities on offer is a multilingual terminology database of scientific and technical terms containing more than 300,000 words and over 50,000 abbreviations.

It is being updated at the rate of 5,000 new items a month.

The European connection came only weeks after MicroLink achieved a major world first — a remarkable hook-up with the giant American database Minuteman which contains a dynamic section for Atari users.

Our latest link-up will prove invaluable in opening up new computing and business opportunities in Europe for Atari users, said Denis Martin, head of MicroLink.

All program listings in Atari User are now available for free downloading via MicroLink, the UK's fastest growing electronic mail service. They join hundreds of programs already available in the subscription service, one of the most popular areas of MicroLink.

Mac emulator for ST starts rumpus

A FUSION IN cartridge giving ST users access to some of the most sophisticated software on the market has gone on sale in the UK.

West Coast manufacturer Data Pacific is selling the device for \$50 — about £38.

When plugged into a 1040ST with monochrome monitor it effectively turns the machine into an Apple Macintosh.

This means the ST can run programs such as Microsoft Plus, MacWrite, MacPaint, MacDraw, PageMaker, LaserWriter, Excel, Lotus 1-2-3, and the Core suite of software. As

well as providing access to an entire new range of top flight business software, the device also opens up the possibility of professional standard desktop publishing on the ST range.

The product was first shown in America earlier this year but currently withholds when Apple threatened legal action.

This was because the original design incorporated two Macintosh ports necessary for an effective interface between software and ST.

But Data Pacific has now re-engineered the device without the ports for sale by mail order.

Purchasers have to purchase their local Apple software to supply them with the word files the official Apple expects but.

Apple Computer is said to be disappointed by Data Pacific's decision to go ahead and launch the product — particularly as it enables the ST to run Macintosh programs faster than Apple's computer does.

David Small, the man behind Data Pacific, is unconcerned and insists his product does not infringe any Apple copyright.

But Atari User sources in the UK say they expect Apple to head Data Pacific into court in the near future.

ALL CHANGE AT ATARI UK



DOUG FRASER HARDING



BOB GLASSTONE

A MAJOR reshuffle has taken place within the executive ranks at Atari UK. Out goes general manager Max Sandridge and enters Doug Fraser Harding. In comes Bob Glasstone, a former Commodore man, to take over the number one spot.

However company officials insist that all the changes have been voluntary. And that approval of a corporate board both with and without consultation.

A certain coincidence factor has crept in here — explained an Atari spokesman.

It just so happens that two of our key executives wanted that would be leaving our headquarters in Slough at the same day.

Max Sandridge has been offered the key role of running the Atari operation in the Far East. He has been asked by Jack

Trenkel chairman of the Atari Corporation to become the supreme of the central manufacturing side.

As such his area of responsibility will encompass the company's Taiwan factories which employ 1,500 people.

However Bob Harding is to sever all connections with the company, opting instead for a new job in the brown goods sector.

Atari UK's new general manager is 37-year-old Bob Glasstone, a former Commodore executive.

Glasstone is a Jack Trenkel appointee as was Sandridge before him. He was previously general manager of Commodore UK, before becoming vice president of Commodore

PICK YOUR CHRISTMAS PRESENT EARLY AT THE ATARI SHOW

CHRISTMAS will come early this year for those Atari users who go along to the Royal Horticultural Hall in London at the end of this month.

More than 100 stands will be loaded with new products and bargain buys from the leading Atari suppliers.

Two substantial 20,000 sq ft exhibition hall will give home computing names like Software Equestre, Teletextor, COS-Microtext and Advanced Systems & Techniques.

This means that the top Westminster location is still to see a repeat of the success at the first Atari Computer Show last March which attracted 15,000 visitors.

Once again exhibitors have guaranteed there will be no shortage of new and exciting releases for the entire weekend 8 and 10 for Atari machines.

From recently formed Anon-

ky Marketing comes the 309 and 1200 full duplex Tynes Phaser 32311 model at a special show price of £345 which includes a selection of software and 16K100 cable.

Advanced Systems & Techniques is launching ST into General Ledger Accounting for £48.95, accounting program Make-to-Move for Macintosh and Super screens priced £39.95 and producing a new graphics tablet which will cost under £100.

First Software is launching a word software suite for the ST together with a range of new books.

Software includes PC Board Designer a computer aided design program for circuit boards and Object 10 is on offer for the first time at £150.

The new book set Object 10 Tricks and Tips priced £14.95 Graphics and Sound £12.95

Martini Language £12.95 and Graph Applications £11.95.

Microdeal is launching its space shuttle flight simulator Shuttle II for the ST at £24.95 and promising Starline Kit II which is said to have the most magnificent graphics ever devised for the ST.

Also from Microdeal come Twin Challenge the popular pub game and Bullock's Score V2 multitasking software which allows the user to play up to four on his board while it is on air.

For 50th anniversary Tynes is bringing out Air Ball Willy at £7.95 and Steve Martin's art utility program at £14.95.

The Atari Christmas Show takes place Friday Saturday and Sunday November 28 to 30.

Opening hours are 10am to 8pm Friday and Saturday 10am to 4pm Sunday.

Level 9 quits BBC for an ST

AFTER four years of using a BBC Micro to compile the words and pictures for its education games Level 9 Computing has switched over to an Atari ST.

Our games are now so complex that a program would take several minutes to compile on a BBC, manager Margaret Austin told Atari User.

But on the ST a just takes seconds.

All future Level 9 games will be produced for the ST and enhanced with digitised pictures based on designs by artist Geoffrey Gordon.

Level 9 entered the ST games market in September with Jewels of Darkness a £19.95 compilation of previous releases. Colossal Adventure Adventure Quest and Dungeon Adventure.

The first Level 9 game designed specifically for the ST is Knight-Gal which goes on sale in January priced £19.95.



IMAGINE if you can 'pull' or 'push' played in a fast 3-D environment and see how a slight idea of what English Software's first release for the Atari ST is about.

But, apart from a requirement to touch coloured balls, Jewels, Quest, Quest 1000, resembles in its traditional looking environments.

For instance, it is played inside a revolving cube and the balls vibrantly travel through air instead of on a surface.

At odds up to 283,144 possible playing angles, 2.5 million different placements of shot, and 2.5 million angles of shot.

Despite sounding like a

mathematical nightmare, the game for two or four players is described by its publisher as relaxing, and undemanding. Our price £29.95.

The accent on America

ATARI 8 for users looking for some American flavoured entertainment are being offered two new programs for Strategic Simulations.

Gettysburg The Turning Point is a recreation of the famous battle in the American civil war.

Players can keep track of

CAD for circuit boards

AN interactive computer aided design tool which automates the planning and design of printed circuit board layouts has been launched for the £3000 and 104000.

Produced by First Publishing in conjunction with Data Backer PC Board Designer is aimed at small electronic engineering firms. Independent electronics engineers and hobbyists.

Its main features is its automatic routing capability - traces are automatically drawn on the screen or, if required, redrawn. Price £299.

Trimbase upgraded

AN upgrade of the Trimbase database for the Atari ST has been released by Talent Computer Systems.

Version 1.42 now handles both delimited and matrix printers. It also sends a report to a file rather than have it printed directly allowing Trimbase to be linked to independent word processing equipment.

Other features include the ability to move directly from module to module without dropping intermediate tables or of data names to include lower case letters, and removal of the security procedure aspect when defining new record cards or changing existing definitions.

Trimbase Version 1.42 costs £39.95.

individual arbitrary period, man and compensation for each unit. Price £35.95.

Followers of the American sporting scene will update their major league match-up statistics using the 1995 Baseball Data Disc covering all American League and National League teams. Price £35.

An event NOT to be missed!

Atari Christmas Show

**Royal Horticultural Hall
Westminster, London SW1**

**Friday November 28 10am-6pm
Saturday November 29 10am-6pm
Sunday November 30 10am-4pm**

The first ever Atari Show last spring was an outstanding success. From all over Britain Atari enthusiasts flocked to London to find out all they could about their favourite machine.



Soon the record breaking Atari Show will be back - with three days devoted to the exciting developments in this expanding market. Make a note in your diary NOW to make sure you don't miss this great Christmas extravaganza!

- ★ All the latest software from publishers in both the UK and USA
- ★ New hardware releases from Atari and other major companies
- ★ Experts from Atari User and Atari ST User to answer your questions
- ★ Experience the fascinating world of computer communications
- ★ Everything on show from stocking fillers to complete Atari systems

Whether you're a new user or a seasoned addict, you'll find the show overflowing with ideas to help you expand your computing horizons!

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JOY AT KONIX

FOR the first time since it launched its Speed King joystick for the Atari 800, Konix Corporation is producing enough units to meet demand.

Since January when the product came on to the market UK outlets have disappointed supplies three times over, says managing director Wyn Hollows (pictured above). In the

summer we even had to turn down an order for 50,000 peripherals—and this was despite fulfilling orders in the UK for 100,000 units.

But now the situation has been remedied and production capability has been increased to 50,000 units a week compared with January's 3,000 a week. I'd like to thank all our customers for their patience over the last few months," said Hollows.

FROM PAGE 9

Manufactured in charge of the company's business in Hong Kong.

Based in the North of England, Glendale is reeled with two wheels.

One of his best bets at the time will be to integrate Atari UK's marketing capabilities following the departure of Bob Harding.

Atari UK has gone to great pains to point out that the recent changes in no way reflect problems.

Max Cambridge has moved on after performing the role for which he was appointed—to bring the company on its feet here and an Atari spokesman says.

Now Bob Glendale will take over from there.

Atari bounces back into profitability

FROM being on the verge of collapse less than three years ago, Atari has fought back to profitability.

And now the company is preparing to set the seal on its return to financial stability by offering its shares on the open market.

Atari has registered with the US Securities and Exchange Commission for the sale of 4.5 million shares.

This is expected to raise about \$20 million.

Equally important, it will mark Atari's remarkable comeback from near collapse to the status of a public company.

For a positive response to the stock offer from private investors and financial institutions will bestow the ultimate accolade of respectability and acceptance.

And it will be further proof for the previously sceptical computer industry of the ability and leadership of Jack Tramiel and his sons.

The stock offer prospectus says sales of Atari computers and video games are currently worth \$100 million a year. And

profits for 1985 so far total \$12.4 million.

Tramiel and his family will sell one half the company if the public takes up the 75 per cent on offer.

And the Tramiels will have cleared off the outstanding \$30 million debt left over from their purchase of the firm from Warner Brothers in 1984.

A leading American financial observer told Atari: Atari's debut as a public company will unveil its full financial standing and market strategies for the first time.

At last we'll get a chance to look at what they've got and what they've really done.

Michael Murphy, editor of a leading stocks and shares publication, said: "This latest development in the Atari saga does an amazing thing—I think Jack Tramiel has put it off."

Starquake for 8 bits

ARCADE adventure Starquake—a chart-topping hit in its versions for other consoles—has become the first Atari 8-bit release ever from Bally Software.

Starquake is set on the edge of the galaxy where a highly unstable satellite has been emerging from a black hole.

It is a biologically operated being in search for a mission to stabilize the planet's re-bubbling its core.

The Atari version has more than 400 different locations, fascinating and gravity-free, integral systems, planet surface assembly, down sub-planel exploration, propulsion pack and planetary beings.

Starquake costs £8.95 on tape, £12.95 on disc.

ST Editing package

AN editing package for creating and editing up to 400 resource files on Atari ST computers has been released by Kudos Software.

Called S Resource, it is implemented to make full use of Atari features and includes a built-in full function on-screen editor.

There are options for auto wrap which aligns objects in character and grid systems in which windowed object areas are automatically calculated and compatibility which helps create files that work on other

and manufacturer models.

S Resource operates in both high and medium resolution and will produce output files for Iconson in C Pascal, Modula 2 and Fortran 77 programs, enabling symbolic reference to resource objects. The package is also compatible with most other resource editors.

Resource files can be copied, renamed and deleted without leaving the program. All text and object types are supported including resource free strings, free images and fonts. Price £29.95.



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FAST BASIC 1.8

These are the average ROM benchmarks

292 London Road, Westcliff-on-Sea Essex
Southend (0702) 332554



Pod power

Program: *Thrust*
Price: £9.99
Distributor: *Firebird*, Widdington
Phone: *Upper St Martins*
Lane, London WC2H 8DL
Tel: 01-253 4100

THRUST is a little like a combination of the *Lunar Lander* and *Asteroids* games of old. You control a triangular shaped craft which can be rotated clockwise and anti-clockwise and thrust forward by firing its rockets.

Controlling the craft from the keyboard is tricky at first — you have to know just when to fire the rockets to overcome events — but it soon becomes easier with practice.

The idea is to steer Krypton pods, which can be captured with a tractor beam. To do this

you must position the ship just above a pod; hover, activate the tractor beam by pressing the *Option* key and then thrust away with the pod in tow.

The programmer must have a degree in physics because the pod hangs beneath the ship like a pendulum and swings noticeably from side to side as you manoeuvre the craft through the turbulent tunnels.

Should the sailing become uncontrollable you will surely be dragged into a corner wall.

You defend yourself against enemy fire by shooting at and disabling their power plant, using your shields for extra protection.

Fuel can be taken aboard using the tractor beam, and bonus points can be gained by both capturing a pod and

sending the power plant's reactor into a critical phase.

Success at the first level leads you into more dangerous areas where you may encounter enemies gently or none.

Thrust was first released on the Commodore 64 and then immediately to number one in the charts.

However, the Atari version is a disappointment. The graphics are fairly crude, the

sound is only average and there is no control screen.

Despite that, the game does offer a good challenge and has a serious add-on quality.

Bob Chappell

Shooter	4
Strategy	2
Playability	2
Value for money	4
Overall	3

Programming aids

Program: *400/800 Column*
Price: £29.99/
400/800 column ship £249.95
Distributor: *Computer Support*, 29
Barrow Road, Alding
Street, London EC2A 4JH
Tel: 01-217 1000

In the States you can buy almost any sort of hardware or software add-on; you require for your 8 bit Atari, but there has long been a lack of such support in the UK.

Now London-based *Computer Support* sells its first game, *400* in its modified scanning system and format the basis of many of its products.

It will allow most old 400/800 programs to run correctly on an 81, or 86, because it basically converts the raw OS back into a reasonable facsimile of the older version and uses the same file now available to good effect.

It includes a whole host of extra features such as 820

Serial commands, save and holding the bank, select error open reset.

Most of its features are simply window dressing, but it really comes into its own when linked with other programs — such as the 80 column version and *Ultimate*.

The 80 column *400* ship allows you to select 80 column mode simply by holding down the *Select* key on power-up.

The 80 column display is based on a Graphics II screen in black and white and is reasonably readable on a cheap monitor. On a TV, though, you could end up with eye strain.

But be warned — the 80 column mode ship will work with your particular word processor or database.

Ultimate is another option available with *400* and it provides a permanently resident machine code editor. This can be called from Basic, or by holding down *Select* and pressing the *Reset* key. The display shows you

the current status of the processor plus the contents of the current program counter and a window of memory.

It has the facility to show disassemble and also mark any line and save given disc content and run programs.

There is no break-point facility, but there is a very limited single step mode. This should be very useful to the machine code programmer who wants to check and modify his code before running it.

The 12081 version uses the same tanks to avoid corrupting the main screen display and save page locations which is a

major failing of the other versions.

You could consider using the *Computer Support* system based to allow you to put both the original OS and two new ships into your machine and switch them in and out as required.

This is very useful when you have to test that some games will not run at all with an 80S ship in place.

These ships are of limited appeal to the straightforward game player, but if you are a programming enthusiast they could be right up your street — it's a little on the expensive side.

André Willey



Running repairs

Program: *War-Copter*
Price: £7.95 (suggested)
19-MB disk
Developer: East Plan Games
Distributors: MCM, Manchester, M4
300V
Tel: 061-432 1000

TWO nations separated by air are in conflict. One decides to attack, sending out warships and missiles against the other.

You are the defender of the attacked nation. Flying a helicopter, you must seek out the enemy ships and destroy them before they slip you.

The game is flown above with the land and sea stretching and scrolling under several screens. Your copter has some ammunition but to get more you must visit a factory on the far side of the island.

The ammunition is produced from raw materials gained from the wreckage of

enemy ships. You destroy ships to get ammunition so you can go out and destroy more ships, and so on.

To gather the raw material you send your copter on a mining trip and ferry the wreckage to the factory.

The more debris you carry the more fuel you use up. Further supplies of fuel can be obtained by landing on either of two fuel dumps, though these may be damaged by enemy fire.

Repairs to the dumps and your war-copter can be made by calling for aid from Repair Control, which may in turn be damaged but can even repair itself. All very circular, isn't it?

Repairs are made at a speed commensurate with the amount of damage. If Repair Control is destroyed the game is over.

The scrolling of the scenery



as you copter flies around is efficiently done.

Moving the joystick left or right rotates the copter while pushing forward sends it on its way. Pulling back launches a missile and hitting the button fires bullets.

A command bar at the top of the screen is activated by pressing the Select and Start keys. This bar lets you load, take off, display fuel and load carried, call the repair ship, drop debris and pick up debris.

from the factory.

Graphics and sound are fairly simple and although there are only a few new elements the game is hardly boring. Even so, it is a reasonable enough attempt.

Rob Chappell

Sound	F
Graphics	F
Playability	F
Value for money	F
Overall	F

Pre-emptive strike

Program: *Raid Over Moscow*
Price: £9.95
Developer: East Plan Games
Distributors: MCM, Manchester, M4
300V
Tel: 061-432 1000

LIKE the successful British-made programme *Raid Over Moscow* is a multi-screened game. One of the good things about it is that the entire game plays in memory — none of that painful multi-loading needed here.

Another welcome feature is the demo. This not only lets you see parts of the game you might otherwise never get to but also allows you to play out any of those control slips or taking over control during the demo.

As a squadron commander of the US defence capital mission it is your task to stop a Russian attack by knocking out

Russian launch sites and then leading an assault on the Soviet Defence Centre in Moscow.

Not exactly the best possible tactic, would you say? Best target the launch and just enjoy the game as an arcade shoot-em-up.

Game 1 is probably the toughest. You must fly as many vertical takeoff fighter planes out of the station as fast as possible.

Due to the game's anti-weightlessness and having to control three thousand as well as open the hangar doors, this part is far from a doddle.

In game 2 specify your craft at low level from left to right across the screen. You must shoot enemy craft and missiles and avoid being shot down yourself.

You're among the missile sites in game 3. Here you're facing forwards and must



knock out the four sites by launching rockets through their window shields.

Game 4 sets you in Moscow, hiding in a trench facing the defence centre. Armed with a rocket launcher — a silent one, to boot! — you must hit the towers of the building and the soldiers who are taking pot shots at you from behind two walls.

The final game places you inside the missile room where you fuel the missiles at a loading maintenance robot. It

told you to forget the silly plot!

The graphics and sound are not particularly exciting but with three skill levels and five different shoot-em-up games you certainly get a decent run for your money.

Douglas Woolfer

Sound	F
Graphics	F
Playability	F
Value for money	F
Overall	F

Three in one

Program: *Samurai II: The Master*
Price: £9.95 (suggested)
 £11.95 (retail)
Supplier: Computer Data Ltd
 Clive Terrace, Highgate
 Road, London N5 9PL
 Tel: 01-622 1558

THIS is probably one of the best collectors released. There are only three games – *Auto Chess*, *Samurai* and *Flip and Flop* – but there is not a dull moment.

Auto Chess is a good old fashioned space shoot-em-up using graphics and sound to great effect. Flip a left and shooting round the planets in a flying saucer, you destroy mines that are shooting in on motor Earth.

Dismissing you from this sphere of mercy are a fleet of space fighters. There are 34 levels to progress through and

you can start on any one you like.

Your weaponry fires in eight different directions and you can hold shields for short periods for added protection. Bonus scores are gained as you progress through the game.

Should you lose all your quarters, the mission terminates with the spectacular explosion of Earth.

The smooth scrolling action, multilevel maps and added sound effects all add up to a classic game.

Flip and Flop is a sort of Q-bert with a difference. The idea is to guide a kangaroo and a monkey over a series of pits suspended in the air.

Many pits are marked in a special way and all of these must be touched – they then change colour – before the clock runs out.

When the kangaroo is on a

ledge above the pits, when it's the monkey's turn, it swings underneath the pits – and that is really disorientating.

Apart from falling off, other hazards include enemy pigs and a cunning dog keeper. There are 35 levels.

Finally, *Samurai* is a game for up to four players in which you endeavour to paint all the rooms in eight buildings. Six skill levels are available.

A three limit elevators, hidden buttons, collars, flying buckets, dumb-buckets, safe rooms, bombs, the first, the

Bucket Chapter and eleven plots are just some of the elements in this fast moving game.

Overall, an excellent compilation in which each game offers a wealth of entertainment. Every player should have this in his or her collection.

John Chappell

Sound	4
Graphics	4
Playability	5
Value for money	4
Overall	4

Fast and furious

Program: *Sun Star*
Price: £9.95 (suggested)
 £14.95 (retail)
Supplier: CML, 2 Rings Road,
 Coppenhall Road, London
 E15 2ND
 Tel: 01-633 2618

GAMES that are able to convey the experience of high speed can certainly capture the pulses of even the most sedate player. And *Sun Star* can certainly do this.

Sun Star is your space vehicle like none you could see. But you won't be flying through outer space – no twinkling stars and flashing nebulae in this one.

Instead you glide over the surface of a maze-like grid moving as slowly or as fast as you like.

The main part of the screen

is taken up with your forward view. Long and short range scanners at the sides assist navigation.

The idea is to zoom around the grid trying to avoid thumping into the blue and white yellow obstruction pulses and red energy pulses. Contact with any of them puts a dent on your limited energy.

You are looking for white disruptor pulses. Repeated firing of one causes it to get increased off and move elsewhere on the grid leaving behind a moving gate energy crystal. You have to pass above this in just 4 before it disappears.

Having collected 10 greenies, you head for a revolving warp gate and blast a laser bolt into the orange hyperspace cell in order to warp to the next grid. The plot

is no different than most and is good reason for doing lots of zapping and zooming round.

Movement is really fast when you let the throttle out on your machine and the feeling of motion is quite exhilarating.

The graphics are pretty basic – all you have here, when you get down to it, are loads of squares, some with different colours. But fancy graphics don't always make the best

choice games.

The quality of *Sun Star* lies in the chase against time, the high speed and the furious but controlled board effects. Fast, noisy and simple – that's up for us.

Jonathan Winstanley

Sound	4
Graphics	3
Playability	5
Value for money	4
Overall	4



Atari's computers have always been renowned for their spectacular graphics capabilities, and there has been a never-ending stream of art and design programs for the 8-bit range.

The most commonly used ones include the fourth Teletext GAD and the old hit-and-run Macropainter and Paint.

All have their relation merits, but also a common failing — if you can't draw you are stuck. There was no simple way to transfer a photograph or other form of picture to the computer.

Now Digital Willey has come up with a solution with its Computervision video digitiser. It will convert any picture from a video-camera or a recorder into a form the computer can store and display.

There are two main types of digitiser — colour and monochrome — and Computervision falls into the latter category. Although the pictures are only monochrome, very good results can be obtained.

The video way to Atari graphics

Fingers all thumbs? André Willey finds the answer for those who cannot draw well.

The package consists of a small black box which plugs into the first and second joystick ports, a disc containing the software, and a small manual.

Plug the lead from your video recorder or camera into the black box via a phono socket, and you are ready to go.

After booting the disc you are confronted with a host-plate of options on the main menu.

First you adjust the sync

control by selecting the first option and turning the knob until the screen tells you how the picture is in sync.

The manual then tells you to adjust the brightness. I found that this should be set to different positions for the different types of camera, but none of that later.

Once set up you can start to digitise your own pictures.

The reader available with each book a different length of time to complete the process, possibly because the unit does

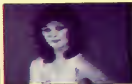
a complete scan of the picture for each grey level required.

The more grey levels you want, the longer it takes.

Reverse pictures is the quickest at an absolute and then gives you a composite screen with a high contrast image of dark and light pixels.

There are two other digitising modes — four level and eight level — which take about 15 and 30 seconds respectively and give a shaded texture to the picture.

The Atari high resolution



The pictures shown were digitized using a Commodore VCR video transfer. Two from black and white photographs in *Goodies 8* and the third in *Applied Motion* from a 1000 master file.



Figure 3: Applied Motion



Original with the equipment shown on the cover



capture modes have not been forgotten, with options for both a high and low contrast capture on to a Graphics 15 screen.

They use the four colours available as black, white and two grey tones and take about 18 seconds to complete.

These screens are compatible with the Macintosh format so you can enhance them later with the Touch Table in any similar package.

The final mode allows you to capture a full Graphics 15 image with 15 grey levels but at the expense of horizontal resolution.

This mode took more than a minute and a half to complete but was clearly worth the wait.

The other main options allow you to load and save pictures and obtain a disc directory.

A nice feature was the inclusion of help screens for

every option, which could prove very useful to the beginner.

The disc also has a number of demonstration pictures for each of the modes - some of which we've printed to show you, to compare the same image digitised in different ways.

I found the best results were most often achieved by using the Graphics 15 capture but a little experimentation should yield good results in most modes.

The brightness requirements screen is a little odd - for the same image range, the more grey levels required, the darker the brightness control needed to be.

This was a little annoying when trying to find which mode worked best with which images.

The results were fine when using a video camera on a tripod, but most video cam-



The Comptonview main screen

eras do not produce a good enough frame-frame to allow you to capture a good image from tape.

This was most noticeable in the Graphics 15 mode because this takes longer to complete.

Comptonview performed well and presented some very pleasing results as you'll see from the illustrations. If you

want to get something into graphics on your 8-bit Mac you should take a good look at the product.

Perfect Comptonview
Price £119 (plus vat)
Supplier: Jans Consulting, 3
Buckingham Avenue, Darnley,
G57 7GR
Tel 0582 551122



Graph 12: High Contrast



Graph 15: High Contrast



Graph 15

Here's the key to programming musical games

Part 6 of **LEN GOLDING's** series on
using your Atari to control devices



THIS month's project is a simple keyboard which can be used for playing live music — or as a programming aid to help you add music to your Atari games or educational programs. It has a two-octave range (E to E) which is adequate for most popular tunes — and it's very easy to build!

We've opted for a status system which means you can play only one note at a time but this keeps the cost down and simplifies construction and programming.

A diode matrix decodes the signal

from each key into a five-bit binary word which is sent to pins 1, 2, 3, 4 and 6 of the joystick port. Last month's project explained the technique in some detail so we won't go into it again.

A short driver program converts the five bits into a decimal number between 0 and 31, which can then be used in any music program you like to write.

Figure 1 shows the printed circuit board pattern, reduced in size so that it will fit on to this magazine page. Its actual dimensions are 330mm x

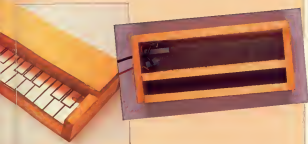
85mm, so you'll need to enlarge it if you want to make your own PCB. Alternatively you can buy the professionally produced version from BHG design.

Constructors could hardly be smaller. Figure 11 shows the board layout — make sure all the diodes are soldered with their black or coloured bands towards the keys. A banding — see Figure 11 — will save time and ensure that the diodes all slot easily into place.

Although type 1N514 is specified, almost any silicon signal diode will



Figure 1: PCB layout pattern



work and you may be able to pick up a job lot fairly cheaply – Tandy stores sell a pack of 50 for about £2.50.

The stylus is made from a standard test probe and is connected by a flexible lead to the point marked stylus on the PCB. The terminal marked RC is not connected to anything.

When everything is soldered together fit the joystick lead and stylus using a cable clamp or P clip to take the strain. Plug the gadget into Port 1 and run Program 1. You should see a zero displayed on the screen.

Touch the stylus to the lower E pad at the left-hand side of the keyboard and the number should change to one. The next key (F) should produce two, and so on up to the top E, which should return 25.

If any one of these make sure that all the sliders connected to the offending key are wired the right way round. Also check that the solder has correctly joined each component lead to its intended track, and that no blobs of solder have bridged the gaps between tracks.

Mounting the PCB in a case

requires a lot of care. The keys must be supported along their length, and you'll want to hide the solder blobs somehow. The prototype case was made entirely from a 5ft length of 25mm x 3mm planed Balsa. This can often be found among the hardware moldings and beatings in large DIY stores.

Programming is straightforward. Four of the five bits are returned at address 632, while the fifth appears at address 644. Our software reset



Figure 2: Layout showing the position of the sliders on the reverse of the PCB.



Figure 10. The starting bit

combine these into a single five-bit word, and store the result as a decimal number from 0 to 25. This can be accomplished by Program IV but it's more elegant and faster to use a short machine code routine.

Program II shows one way of doing this. Lines 10 to 40 contain a machine code routine (Program IV gives the source listing) which decodes the keyboard's output fifty times a second during the vertical

blanking interval. The result is stored in address 1791, and can range from 0 (no key pressed) to 25 (tap 6). Lines 50 to 70 set up a matrix P which contains all the pitch values in ascending order.

Line 80 generates the sound using the number held in 1791 as an index into the matrix to retrieve the appropriate pitch value. For example, key 6 will select matrix entry number 6 and this value (144) used in a

SOUND statement produces the note A.

The program also resets address 17 to 0 every time a key is touched. This prevents the screen colour rotation which would otherwise occur after about ten minutes.

Program II shows one way of recording and playing back your tunes. Add these lines to Program II, deleting the existing line 80. This program waits for your first note, then stores its pitch and duration in two matrices named PITCH and TIME respectively.

Duration is calculated by using the real-time clock at address 20. This address increments automatically every 1/60th of a second, so it's easy to time an event by checking the before and after values. In Program II the counter is set to 0 whenever you touch a note and reset again when you move the stick. The count value at that moment is stored in matrix TIME and indicates the note's

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- Whilst every effort is made to ship the product by return, please allow 21 days for delivery.



Ad. Number Bowed. Head Battering.

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1. **Introduction**
 2. **Background**
 3. **Methodology**
 4. **Results**
 5. **Conclusion**
 6. **References**



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3. 1994-1995	1994-1995	1994-1995	1994-1995
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9. 2006-2007	2006-2007	2006-2007	2006-2007
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12. 2012-2013	2012-2013	2012-2013	2012-2013
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41. 2070-2071	2070-2071	2070-2071	2070-2071
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46. 2080-2081	2080-2081	2080-2081	2080-2081
47. 2082-2083	2082-2083	2082-2083	2082-2083
48. 2084-2085	2084-2085	2084-2085	2084-2085
49. 2086-2087	2086-2087	2086-2087	2086-2087
50. 2088-2089	2088-2089	2088-2089	2088-2089
51. 2090-2091	2090-2091	2090-2091	2090-2091
52. 2092-2093	2092-2093	2092-2093	2092-2093
53. 2094-2095	2094-2095	2094-2095	2094-2095
54. 2096-2097	2096-2097	2096-2097	2096-2097
55. 2098-2099	2098-2099	2098-2099	2098-2099
56. 2100-2101	2100-2101	2100-2101	2100-2101
57. 2102-2103	2102-2103	2102-2103	2102-2103
58. 210			

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Test is rather different to the usual arcade and photo-viewer games. It is a challenge, it's fun, and it's not too hard.

The screen will select a random pattern of lit-up squares on a three-by-three grid. Your task is to rearrange the blocks so that they are all illuminated, for the entire row. It is simple when you get the hang of it—but then so is the Rubik's Cube!

You control the program with keys 1 to 8. Each will issue a series of the grid, as shown in Figure 1. For example, if program 1 were active, if program 2 were active, if program 3 were active, if program 4 were active, if program 5 were active, if program 6 were active, if program 7 were active, if program 8 were active.

In the novice level you have as long as you want to complete your task, so it is a good idea to get some practice here.

In Advanced level you have a time limit of 30 seconds to finish. which isn't too hard when you've

got the hang of the controls.

Speed level is the hardest of all—you have only 10 seconds per game, and the time will automatically show in a corner of the screen to show you off the screen.

The program was written in machine code with the

**By MICHAEL
LEVIN**

assembly-language cartridge, but we have printed a version which will allow everyone to use it.

After typing in the listing, load it up with the 8-bit-8-bit. This is most important because the main block program is already a set of 8-bit-8-bit instructions containing the machine code.

If you have made a mistake your error will almost certainly

crash as soon as you type RUN, and you'll have no luck of recovering your hard work. Make sure that you have not missed typing a number—or even worse, a whole line.

Once you're sure you've typed it correctly, SAVE a copy and then type RUN. The screen will go blank when the machine code is finished into memory, and after about 30 seconds you'll be greeted by the main title screen.

In the steps you can use the Start key to change the level of play, or the Start key to begin. You may press Option at any time to return to the screen.

For those interested in machine code programming, we have included the full source listing on the cassette tape and diskette, and a full set of instructions on MicroLink. Unfortunately, space restrictions mean that we can't put them in the book.



```

10 000 0000000000000000
20 000 00 000000000000 0
30 000 00 0000 000 00
40 000 00 0000 0000 00
50 000 0000000000000000
60 000 000 00 000 0000 0000 0000
70 000 0000
80 00 0000 0000 0000
90 000 0000000000000000
100 000 000 00
110 000 000 00
120 000 000 00
130 000 000 00
140 000 000 00
150 000 000 00
160 000 000 00
170 000 000 00
180 000 000 00
190 000 000 00
200 000 000 00
210 000 000 00
220 000 000 00
230 000 000 00
240 000 000 00
250 000 000 00
260 000 000 00
270 000 000 00
280 000 000 00
290 000 000 00
300 000 000 00
310 000 000 00
320 000 000 00
330 000 000 00
340 000 000 00
350 000 000 00
360 000 000 00
370 000 000 00
380 000 000 00
390 000 000 00
400 000 000 00
410 000 000 00
420 000 000 00
430 000 000 00
440 000 000 00
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770 000 000 00
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1. 現金	100,000	100,000	100,000	100,000
2. 短期有価証券	50,000	50,000	50,000	50,000
3. 固定資産	500,000	500,000	500,000	500,000
4. 負債	100,000	100,000	100,000	100,000
5. 資本	450,000	450,000	450,000	450,000
6. 繰上金	10,000	10,000	10,000	10,000
7. 繰下金	10,000	10,000	10,000	10,000
8. 繰上金	10,000	10,000	10,000	10,000
9. 繰下金	10,000	10,000	10,000	10,000
10. 繰上金	10,000	10,000	10,000	10,000
11. 繰下金	10,000	10,000	10,000	10,000
12. 繰上金	10,000	10,000	10,000	10,000
13. 繰下金	10,000	10,000	10,000	10,000
14. 繰上金	10,000	10,000	10,000	10,000
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23. 繰下金	10,000	10,000	10,000	10,000
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37. 繰下金	10,000	10,000	10,000	10,000
38. 繰上金	10,000	10,000	10,000	10,000
39. 繰下金	10,000	10,000	10,000	10,000
40. 繰上金	10,000	10,000	10,000	10,000
41. 繰下金	10,000	10,000	10,000	10,000
42. 繰上金	10,000	10,000	10,000	10,000
43. 繰下金	10,000	10,000	10,000	10,000
44. 繰上金	10,000	10,000	10,000	10,000
45. 繰下金	10,000	10,000	10,000	10,000
46. 繰上金	10,000	10,000	10,000	10,000
47. 繰下金	10,000	10,000	10,000	10,000
48. 繰上金	10,000	10,000	10,000	10,000
49. 繰下金	10,000	10,000	10,000	10,000
50. 繰上金	10,000	10,000	10,000	10,000
51. 繰下金	10,000	10,000	10,000	10,000
52. 繰上金	10,000	10,000	10,000	10,000
53. 繰下金	10,000	10,000	10,000	10,000
54. 繰上金	10,000	10,000	10,000	10,000
55. 繰下金	10,000	10,000	10,000	10,000
56. 繰上金	10,000	10,000	10,000	10,000
57. 繰下金	10,000	10,000	10,000	10,000
58. 繰上金	10,000	10,000	10,000	10,000
59. 繰下金	10,000	10,000	10,000	10,000
60. 繰上金	10,000	10,000	10,000	10,000
61. 繰下金	10,000	10,000	10,000	10,000
62. 繰上金	10,000	10,000	10,000	10,000
63. 繰下金	10,000	10,000	10,000	10,000
64. 繰上金	10,000	10,000	10,000	10,000
65. 繰下金	10,000	10,000	10,000	10,000
66. 繰上金	10,000	10,000	10,000	10,000

[illegible]

TO conclude this series on the player missile graphics system, we will now take a more detailed look at playfields, the back-grounds that all the action takes place on.

The player missile system recognises 4 playfields - numbered 0 to 3 which means that if you use a graphic mode with more than 4 colours things can get tricky. The system normally works with playfields that are set by colour registers 704 to 712 and drawn by the use of COLOR commands 0 to 3.

If, for example, you enter graphics mode 12, then only 4 out of the 8 colours in this mode can be used as playfields for the purposes of the player missile system. The fifth colour can still be displayed on the screen but cannot be involved in any collision detecting routines.

Using collision detection and priority in modes with less than 4 colours is fairly straightforward - though of course the number of playfields is restricted. There are two exceptions to this rule - the GFA, graphics modes 9 and 11 cannot normally be used to detect playfield collisions.

Graphics mode 10 is very strange. This is a 5 colour mode but only colours set by registers 704 to 707 (and not 708 to 712 as in other modes) are recognised as playfields. Registers 704 to 707 also control the player and missile colours so players and missiles will take on the same colour as the corresponding playfield number.

To help you design playfields for

STEPHEN WILLIAMSON ends his series on player missile graphics by taking...

A LAST TRIP ROUND THE PLAYFIELDS

Inclusion in your player missile program, this month's program is a utility which can be used to draw playfields in graphic modes 9, 6, 7 or 10 - all 4 colour/4 playfield modes. The playfield designs can then be saved to disc or cassette ready to be loaded back into your programs.

Playfield Designer is a much improved version of the Computer Games program from October 1985 issue of *After User*. A display list interrupt routine (lines 1030 to 1120) has been included so that the text window at the bottom of the screen will not change colour when the colour registers are altered. Data commands have also been added.

When you run the program it first asks you to choose the resolution of the graphics screen - 40 x 30 pixels (Mode 3), 80 x 40 pixels (Mode 6), 160 x 80 pixels (Mode 7) or 160 x 160 pixels (Mode 10).

After a few seconds delay for the

initialisation routines a cross appears at the centre of the screen. This is a player and acts as a cursor.

Commands are expressed by pressing the key indicated in inverse letters in the text window. A key prefixed by \$/ means that the appropriate key must be pressed at the same time as the Shift key is held down.

To exit from some commands (such as Draw or Fill) press the joystick fire button. The full details are given in the accompanying manual.

At the bottom of the text window the current X and Y coordinates of the cursor are displayed (X is the horizontal coordinate, Y the vertical). This is useful for working out routines for use in Basic programs that involve the DRAWTO and PLOT statements. By taking note of the X and Y coordinates, the data for these Basic statements can be calculated.

The load and save routines contained in Playfield Designer can

Color (C) This changes the colour of the current playfield. Colours are numbered from 0 to 15 as shown in Figure 1. Brightness must be within the range 0 to 14, even numbers only - an odd value will default to the even number 1 below. Press Return after entering in the colour and brightness values.

Draw (D) A pixel is plotted beneath the cursor. Move the cursor around the screen by means of a joystick in order to draw a design.

Erase (E) Erases the pixel that is beneath the cursor.

Fill (F) Used to fill in enclosed areas. A line is drawn from beneath

the cursor and to its right and it touches another pixel. By moving the cursor around the inside of a shape this command acts as a paintbrush to fill in the area. If the Fill command is used outside of an enclosed area then the line will wrap around the screen. This can be used for example to colour the whole width of a section of the screen.

Line (L) Press the joystick fire button and a pixel will be plotted beneath the cursor. This is the beginning of the line. Move the cursor to another part of the screen and press the fire button again and a line will be drawn from the beginning point to the cursor.

Change (2 to 3) Keys 2 to 3 change the playfield which the program appears on. Playfield 0 is the same colour as the background so unless you are drawing on top of another playfield no pixels will be visible on the screen. You can change the colour of Playfield 0 to alter the background colour.

Circle (O) When key O is pressed a pixel is plotted beneath the cursor which is the centre of the circle. Move the cursor either horizontally or vertically (but not diagonally) to another part of the screen and press the fire button. The distance between the current cursor position and the centre of the circle is the radius.

This year's PCW Show marked the first anniversary of the revitalised Atari UK, and the area devoted to Atari products reflected the company's position in the market.

Taking pride of place behind the business and home sections of the show, Atari had sub-let over 1000 square metres of stand space to the companies that keep the Atari business alive — the third party hardware and software manufacturers.

New products on display on the Atari stand included the XDP-80 80 column box for the 8 bit range. About the size of a 1050 disc drive but half the height, it connects via either joystick port one or two and gives an 80 column screen on a black and white monitor. Programs can access the screen by using the 'B' driver. The XDP-80 also incorporates a customised standard parallel printer interface. Hopefully software companies will soon be adapting their word processors and spreadsheets for the XDP-80.

On the 8 bit software side, Atari was showing Star Raiders II — the follow up to the first game that Atari produced for the 8 bit range six years ago, which has you in command of an alien space ship, battling against the evil Zylon fleet in deep space.

On show for the first time were the new 2080 and 4180 STs with 2 and 4 megabytes of memory respectively. Running all programs for the 520 and 1040 STs, the new additions to the ST range are claimed to be fully compatible with their older counterparts.

The match talked about better ship, also made an appearance made a 1040ST. Two 1040s were displayed side by side, running exactly the same aviation demonstration — a flock of birds flying across the screen. The 1040 containing the blitter chip was running the program about four or five times faster in a very impressive demonstration of the blitter's automatic speeding up abilities.

By the side of another ST was a box that looked deceptively like a hard disc but was in fact the Atari IBM PC emulator. Atari is currently working on making the emulator as compatible as possible with IBM programs. When the emulator can run a so-called 'wild' lot of IBM



Illustration to sample the depths of a host of new developments

Atari revitalised

programs, including Lotus 1-2-3, it will be released for an estimated £300-£400. Atari expects this to be before the end of the year.

On the ST software side, Atari was demonstrating Proton, its own based games package. In addition to

**By
ANDREW
BENNETT**

offering all the standard commercial games, it supports split button rates for accessing Proton and other 1200FPS systems.

Atari also demonstrated completed versions of several pieces of software that have previously only been seen in test only states. These included Hoochtime and the much awaited ST version of Star Raiders.

In one corner of the stand an ST sat in front of what looked like a BBC computer's screen display. This was in fact the first showing of Atari's BBC Basic emulator. This early closure program allows use of BBC Basic programs on the ST which will help Atari to sell STs to the educational market. The emulator provides all of the BBC Micro's colours, screen

modes and VDU commands. A future version will even allow use of BBC's machine code using BBC Basic's built-in assembler.

At one point in the show, Leonard Truesdell (who is represented in the issue of Atari User) could be seen demonstrating Microsoft Write to a delighted crowd of parents-by-Microsoft. Write is the ST version of Microsoft Word which has been very successful on the IBM PC and Apple Macintosh. The ST implementation does not include outlining, but does include all of the facilities of professional word processing programs including foot notes and multiple fonts.

Also on the Atari stand were several companies demonstrating their new pieces of software. Microprose was showing its Silent Service submarine simulator which has just been converted for the ST. Microprose promised that most of its other bestselling titles would also be converted for the ST, but was reluctant to give specific details.

Microsoft was previewing its Art and Film Director packages for the ST. Art Director is a professional drawing and painting program which



Just a few of the many and varied crowds at the show

includes such tools as erudite answer sheets and decks. It also features colour cycling for animation effects and will show a picture on screen in grey scales so that you can see what the printed work will look like.

Plot Designer allows you to create every element of an animated sequence on screen. It includes such commands as cut, insert, zoom and even slow motion. Music and sound effects can also be added to complete your films or presentations. Both packages will sell for £49.95 and will be available from the beginning of the month.

Next to the Atari stand GSI was demonstrating 1st Word Plus, a new word processor for the ST costing £99.95. 1st Word Plus is based on 1st Word which is bundled with all STs, but it includes features a basic spell checker and mail merging as well as following graphics to be pasted into documents. To complement 1st Word GSI has released a mail merge program called 1st Mail which costs £19.95.

GSI has also signed a distribution deal with Amiga software house Amig. This will make Amiga's ST programs easier to buy in the UK including the much sought after CAD 3D v3D drawing program from Tom Hudson, the author of Degas.

On the Adonissoft Systems and Techniques stand two new ST memory-expansion boards made their debut. The first allows £200T owners to upgrade their machines to 2Mb of memory and the second lets 1040 owners upgrade to 4Mb. Both boards will cost approximately the difference between your present ST and a 2000

or £100 model.

Star attraction of the Computer Concepts stand was the Fast ST Basic cartridge. Fast ST Basic is far more powerful than Amiga's version of Basic being faster, integrable with Gem and featuring a range of debugging facilities. Computer Concepts was also selling a new cartridge called BackPack which contains nine demo programmes. Both cartridges are reviewed in this month's Atari ST. Fast ST Basic sells for £69.95 while BackPack costs £49.95.

Software Punch from Liverpool was demonstrating its 2000 hard disc unit and Berlin's ST word processor Berlin costs £39 and has a built-in graphics editor which allows

murder mystery in a spooky castle. Leather Goddesses has you kidnapped by evil women from Phobos, one of the moons of Mars. It can be played in any of three modes which range from made to level. The program's descriptions and adventures become more adult as you progress through the modes. Watch killing a column for more details soon.

Softscience followed up its successful Rhythm spreadsheet with another desk accessory, a word processor called DeskWise. Naturally its DeskWise is extremely easy to use, but it is available from within any other Gem program that you might be using.

Beyond had designed its stand to resemble the bridge of the starship Enterprise for the premiere of its latest game - Star Trek. The game features superb digitised pictures of the various crewmembers. Beyond is producing the game to coincide with the 20th anniversary of the TV series. The game has the status this month as the ST with hopefully an Atari 2600 version following soon.

Umsatsoft was demonstrating the 8 and 16 bit versions of Colourspace plus its range of 8 bit games. Oliver Jeff Miller could be seen with a large grin on his face - a result of seeing the latter demonstration. Apparently ST Colourspace will run faster with the latter titles. He also hinted at the possibility of Colourspace II for the ST range.

Overall the show demonstrated not only Atari's commitment to its whole product range, but also the vast support provided by third party companies. On both the 8 and 16 bit fronts, Atari's future looks assured.

Atari's future looks assured

you to design diagrams and pictures for putting into your documents.

Beyond the specific Atari area there was plenty of interest. Rainbow and Activision could be seen showing off new and old titles for the Amiga and 16 bit ranges. Gathering large crowds on the Rainbow stand was StarCider the new 3D game loosely based on the Star Wars theme.

Activision was displaying several new games for both Amiga ranges. Most notable of these were Hagler II the follow-up to the successful Hagler, and two new games from Infocom: Moonmist and Leather Goddesses Of Phobos. In Moonmist you play an amateur detective who must solve a

BIG TOP GOES ON-LINE

COMPUTER communications have transformed the business operations of British Airways creating direct

MicroLink membership means that the American Office - as called because of its three ring US style presentation - can utilise the very latest tele and video based mail facilities.

But more importantly a reliable satellite to the public telephone system available from the office is no longer cut off from the outside world when the 30-second voice is creating hundreds of miles between offices.

The computer and modem in the administrative master means that even when the show goes on the road there is constant communication with headquarters and with booking operations in the back office.

Using the Royal Vistair system and MicroLink means no business just as off course as this permitted is direct communication like there are for instance says the British administrative director of the airline.

With 12 planes a week and up to 3 000 people in each under the Big Top you can imagine what a difference 700 calls and a good few faxes to running out again means.

We are on the road from March to November and apart from the Christmas/New Year period do you can see why I believe your strategy in the sale of computer communications is a business necessity.

Technology aids race relations

AS COMMUNITY relations officer for Harington and third largest London borough, Sharon Ras has a big job on his hands.

His main function is to see that in accordance with the Race Relations Act of 1976 there is no race or colour discrimination by employers in his area.

The size of this task can be seen from Harington's 230 000 population and its concentration of large-scale employers such as Heathrow Airport - 50 000 work there - British Airways Race, Xerox IBM, Hewlett and

Expansive Davies.

Fortunately Indian born Mr Ras has MicroLink's electronic mail and calls facilities to help keep him in touch with the many firms under branches central and local government departments he has to deal with.

Large number of the general public also come to him with questions.

Says Mr Ras - Harington has a large, racially diverse

population living in an area that encompasses the extensive of run down inner blocks and the surrounding belt.

But we have excellent community relations here and we intend to keep things that way.

We are greatly helped in this respect by our own public relations technology and by other new technology schemes such as MicroLink.

Transatlantic link

MICROLINK has made history with the first ever transatlantic satellite computer link up.

With the aid of a new microsatellite satellite MicroLink and a giant American satellite station MicroLink have set up a complex electronic gateway enabling the exchange of messages to occur across in all parts of the US and UK. It allows MicroLink subscribers not only to send

messages to America but also to take advantage of a vast array of services offered.

Stock market watchers can access instant information on share movements from New York and Main and over 40 services for doctors dentists lawyers writers and other special interest groups.

Leading news agency Associated Press supplies a 24-hour a day global information service.

Phones' wasted weeks

A NEW survey by British Telecom has revealed that the average businessman wastes the equivalent of one week a year failing to communicate by telephone.

Statistics show more than five messages left in waiting telephones or lost and four out of five calls find the number engaged or the other person unavailable.

As a result more and more business people are turning to electronic mail as a means of making their messages reach their destinations - and the fastest growing of these systems in the UK is MicroLink.

According to the BT survey the average business person makes 2 000 calls a year. Two thirds of them to individuals who for various reasons are unavailable at the time.

Wildlife lifeline

THANKS to MicroLink UK birdwatchers were able to follow the progress of a unique Japanese wildlife banding event.

The 24-hour Birdathon was held in vast forests to buy land for a birding preserve for Japanese crows.

Organisers hoped for the million yen through some

sorts of 18 teams who spent a full day and night counting the Japanese crows made for different species of birds.

Telegraph user MicroLink subscriber Yukio Ishikawa Armed with a mobile phone, a portable cassette and portable radio he was able to send regular reports to the MicroLink computer



Accent is on pure adventure

By Brillig

On my looking why I had seen on this correspondence from readers of late, one of my TTS King games shamelessly confessed that he had recently filed away a huge pile of unanswered letters after a lonesome holiday celebration of his pet badger's birthday.

Following a rigorous search of my office walls of caves a large pile of missives was discovered filed under K (Knee for help). Said apprentice has been duly responded and told to desert from lunch-hour scribbling of Brillig's Bean (your candidate) adapted from an ancient recipe for leather tanning and molasses and often used in the treatment of foot-and-hand. As I warned him, even a half-pint of my fabled brew requires a convalescent period of no less than two weeks.

So if you haven't yet seen your

request for assistance answered in these pages, please be patient — all my apprentices are on double overtime trying to catch up.

Those of you wanting help this month range from Corvid Dillee of Uteropolis who's had trouble in the Payoff to J. Bessington who wants to know about the map that she's found behind the guarded door in Enchanter. Hopefully the data I've provided will give you agains without giving a miss!

My thanks to Kevin Crenshaw of Lancaster for his hints on Quasmodon and to Mike Mastron of Hallowed and Dave Fox of Raining for their tips

CLUES CORNER

THE PAYOFF

Can't put the hot leads when the drill breaks?

STW EROW RQW DOL

What use is the list of numbers?

NEPO QTRD SHQI JFWHS YSLI ETV

Trying to get into the car in the air cars?

KEKE HTSA HEWD SMOS

Can't open the safe?

NOI AND MOCE HTRO FHSA BUAN EYTH SARE S

Want to get past the guard dog?

DARM EYND NEMT DARM DARD

Consumer craving an omelette?

ABU MUTE QCD H

Trouble with the fire escape?

RQOD EYF DQWE HTRO QDER HNE FORD QDER HTL QSRU TERN SARE VOM

Sucky problem with the window?

PRULI NEMT REPA FQWE NQCI TSEL CARR TQAI RPS

LORDS OF TIME

Can't get past the cave people?

ELPO EYCY ACEN TIAN MGA TEV JHWH HTSU RMAE QYND

ABWH TTAZ QNU MENT EYAW

Whee ala from the barometer?

QLOD FOTE QOUN EYTH MEY H

Need access to the workshop?

TEET NQAD EYTH NQMA EYWE JHWH ATON ELA FEHT YARA C

ENCHANTER

■ SHOD RYNE CSUL SNAR TEHT FQPA MASE TY

■ LICH EYTH EYTH WHAM EYTH GSYH IDNG RISA REBH AGNI TCYEN NQCY RT

■ SHOD RYNE CSUL SNAR TEHT FQPA QVAL EYTH EYMA NQSI RT

HULK

Can't leave the darts?

EDIS TUDO QHEN TPK ETIS NOTT UCHS UP

Want to go somewhere else other than the underground room, field and dome?

TSEW DQNE HTD REYNEMO DARE SUDY REYE NEMH

SNOWBALL

Stuck after leaving the coffin?

■ WYUT NQEN QYTH EYMA UPNE NEMT RQND S

■ NUT DQOT HQPU DQNE HTW JFQC EYTH EYTH QYTH UQOD S

■ HTRO NQON EYTH NUT RQND TQUD S

MORCON'S QUEST

Pygmy growing a pest?

YWOY PLI QYTH TERN PWOL JEKA MCEY REBH QNAS NQON FQCE MASH TW

Centurion plant a problem?

YWOY PWY WYTH LQNI EF

[illegible]

I ACCIDENTLY bought Starb Night and Starb Start for my Atari 800XL. The instructions for both versions are exactly the same regarding loading procedures.

Both say: "Press Play on cassette, then switch on your power and hold down the Start button, then press Play on the program well load".

When I tried this with Starb (Night) through playback I had made a mistake. I then started again and got the same results.

As I don't thought I had bought a faulty cassette and I started all the loading procedures again, except this time instead of just pressing the Start button when switching on the computer I held down both the Start and Option keys, and my programs loaded!

Is this just a mistake or are these instructions I read under these instructions? — **M. J. Ailly, London E823**

■ The manual load procedure with the 800XL is to hold down both Start and Option when you switch on. The Start key tells the computer to do a hard load and the Option key tells it not to use the built-in Start function.

When some of these games came out — before the XL came was released — Basic was on a separate cartridge which could be inserted or removed at will, but now the Option key takes care of this for you.

Unless a game specifically states that it requires Basic to be present, hold down both

Start and Option for all tape loads.

Getting it right

Is it possible to enter the Starb Night chessman program so that you can check a section from the middle or end of the game being board instead of waiting for it to be cleared again from the start each time?

That is, if you find you have made typing errors several times between say the 1000 and 2000 line after correcting the typing mistakes you have to wait for lines 10 to 1000 to come up on the screen before you can correct your amended score.

Is it possible to LIST "C" 1000-2000, or any other lines you want to check, instead of waiting for the list to be run through?

I hope you can help as it gets a bit tedious if you happen to make a mistake towards the end of a long listing. — **R. Edwards, Runcorn, Cheshire**

■ You can indeed use Car it

Right to chessman start portions of a program.

That's very useful when you already know that 50 per cent of the program is correct and you just want to re-check a couple of lines.

To do this use LIST "C" as normal but follow it with a comma and the line number range you want. For example

LIST "C",100,200

would list only lines 100 to 200 and

LIST "C",100

would list line 1000 only.

You can then feed the tape to Car it Right exactly as before.

80 column extensions

I OWNED an 80 column text and graphics program from the August 1986 issue of Atari User and my 1200Z unit was very impressed with the results.

I intend to buy a word processor — either Proscript or SuperScript — and a database. Is there any way in which I

could obtain an 80 column display from these software stores on the TV or monitor?

— **B. N. Turner, Haines Bay, Barb.**

■ Most commercial programs do not recognise any of the thirty-two 80 column add-on at present. However note that the Atari XSP 80 is an 80 column version of the more popular word processors and spreadsheets.

Some at least 80 columns already but you'll have to check which kind of 80 column board they support.

Plugs and ports

IN the Gadgets article in your August 1986 issue you mentioned that when you are ports 3 and 4 it is possible to port 71 RAM and 27 from the second board. Does this mean it would be possible to use the second board plug too?

Is port 3 used 3 and 4 on the 400/800Z model of the same case for the same or other purposes?

Is it possible to turn only port 3 output while the other is used for input?

Is the parts list you did not mention where you got the case you showed? It looks like there was room for two PCB's — **M. van Nieuwen, Hengelo, The Netherlands**

■ If you omit the power supply components from the second board you may also miss out the external ground plug. Can you the main supply to the 240V AC connection on both boards.

Also connect the 12V and 5V terminals marked Auxiliary Output on each board to its counterpart on the other.

Happily bitten by the bug

I BOUGHT an 800XL/VO to fit in my unisex Christmas and I must admit because quite minimal input.

But if I had not discovered your magazine and taken note of its origin I don't my interest and perhaps also that of my son, would have waned.

I would like to praise the magazine that attention in your pages. My son acquired some 400/800 games that were not even in the XL, and

received a 121 from Scotland of Birmingham.

Also when the tape came — within three days — it would not have been completely loading I sent it back with covering letter, and just over a week later we received the new XL. Just that excited time, accompanied by a letter of apology and a free games tape that my son was over the moon with.

And yesterday we have just

received our 1020 printer supplied by Compuserve of Southampton. It arrived and I couldn't run it after the other was played.

We now have a 1080 disc drive as well bought from Omega with another 800XL. Also software for the same price that a new 1050 would cost from most dealers. Yes, we have certainly been taken by the bug. — **Nervous Devotee, Colchester, Essex**

your formatted discs which contain FMOS files. Could you please help me? — **Richard Powell, Sheffield**

■ It sounds as though your disc have not been properly formatted. Rept to your DOS Master Disc (DOS 2.0) if you can get one otherwise use DOS 3.0 if you must.

If this won't work, your drive is definitely at fault. If READY comes up type DOS when the DOS menu appears select the option for FORMAT disc and tell it which drive to use.

The drive should rotate and tick for about half a minute, then stop.

Try to duplicate your DOS disc on to the new disc. Follow the instructions in the manual.

Now try to load up your new disc. If this doesn't work take your drive back to your dealer as it may well be faulty.

Magic formula

SAVING used the letter *J* in the September issue by S G. Part why computerists about the lack of the *J* in function. I would like to complain about the lack of the ACS (ASCII control) and the ASH (ASCII control) function.

The good news though, is that I completed a *Robot* at home with game on the following formulae:

ASH="ATN(1/4 - (J-1))"
ACS="000-01-ASH":x

where *J* = 1

With that ASH is already in the computer.

I hope that some readers will find these useful! — **Neil Teasdale, Hockworth Wood, Birmingham**

Checking checksum

I HAD a problem with Caves Escape. When I try to hit 'G' it is up to Adventure 8, it's all right for the first column of Characters numbers.

Then the column it makes when I hit space/end/played go

ATARI USER Mailbag

We welcome letters from readers — about your experiences using the Atari games, about tips you would like to pass on to other users, and about what you would like to see in future issues.

The editors will write to you.

Mailbag Editor
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very low and the checksum program says it is disabled.

Is it any recorder or have I disabled everything on some device?

Also, how can I stop the checksums going off the screen just as the last lines are printed up? — **Barak Houghton, Milton Keynes, Bucks**

■ It sounds as if, though the tape has not been LISTED properly. Make sure that you are following the instructions in the letter.

If that is not the problem, it could be a mistake in your typing of the List to Right program or a fault in the recorder.

You can use Control + F to start and stop the listing as well as tape in the extra lines we printed in the October 1985 Mailbag.

Shedding new light

I READ in the September mailing that you can get a light pen for 498.00 with software, but do you need special software to use a light pen?

I have a joystick operated drawing program and I wondered if I could use a light pen with that?

Could you also tell me if there is a draw synthesiser available on cassette? — **A Patterson, Birmingham, Hants**

■ A light pen functions very

differently from a joystick as a touch tablet and so needs special software.

Your normal joystick-based drawing programs will not work with a light pen, so it's a good idea to make sure that software is provided if you are thinking of buying one.

3 For Systems by Dymally's Resolutions do a drum synthesiser called Digitron on tape or disc which features real digitised drum sounds.

Hair restorer

I HAD typing on *Paras-Builder* from the September issue of Atari User and it was getting late so at the 3000 I stopped and saved it to tape.

When I loaded it to a Right and did the checksum I was pleased to find it had only made two slips as I tried to load the program back in but I kept on getting error 143 at line 0.

I am using an 80082 and a 400 tape recorder and I heard something about if I typed LARANT it would clear the head buffer as I tried it and still got error 143.

Could you tell me if there is any way of reformatting the program as I am pulling my hair out? — **A. Black, Farnley**

■ The LPRINT trick is only applicable to the old 400/500 machines and in any case must be done before SAVING not before loading.

It sounds as though your

tape has not saved correctly and there is no way to recover it that is the case.

The loading the program back from the LISTED version you used with the checksum. First type NEW then use ENTER C to load it back in again.

Cassettes and copyright

I AM thinking of buying the FMOS disc drive but also I received my 80082. I have been a cassette user, so all my programs and games are on cassette.

Would it be able to transfer my cassette games to the FMOS disc drive but also that is, of course, making sure that I wouldn't infringe the copyright? — **Karl Westerside, Winesford, Cheshire**

■ The problem is that you would actually be doing just that! In your case you have bought the cassette games and now want to transfer them to disc for your own use.

This is a fair enough aim, and one that software companies would not object to.

However if they made their tapes so that this sort of transfer was easy then they would be encouraging the pirates to do the same, so most commercial tapes are protected against this sort of copying.

There are programs which claim to copy a cassette game to disc, but we rather doubt their effectiveness on the more recent generation machines and you would probably be wasting your money.

Faulty keyboard

MY 80082 keyboard has gone wrong. The punch holes are always jammed because it constantly repeats after any key is pressed.

Is this due to the Revolution II board, because I mist the test in your March issue and the answer was NO?

Will the keyboard program in

the day does cure this bug?
 I had regard to the solution of the Play key on the Atari 4000 disc recorder. I glued the key back together again using superglue. J

Then, knowing the repair job would not last very long under constant use, I thought it was the cure, but — **James Ryan, Southampton**

■ This sounds more like a fairly widespread than a basic problem. There are no known bugs that behave like that, so you'd be better off taking it back to your dealer for repair.

Printer programs

I AM assured by the numerous letters complaining the apparent lack of software for the Atari 1000 printer it is true that the Printpage program will not work but most others do with only slight differences.

I have two screen dumps (Micro Painter and Photo-Editor) and about four other programs which work fine.

Superpage has a built in printer driver for the 1000 and Rubber Stamp Typewriter and so on and all work at the speed screen is printed using a separate screen dump.

Using these utilities loads of all styles and sizes can be obtained and also most printers (exceptable) — **Alan Whittaker, Buckle, Bedfordshire**

High scoring

W HOUCE (no shift) screen, for an undeniably high score with all the bottom of the screen for back the enemy. Click up the rigging about three minutes then fall off the moving pointed left or right. Quickly try to grab the rigging. If you have done a right you should be stuck on an endless loop of trying to fall and spring is held on.

If you get the enemy underneath you they will not be able to touch you, but you

USING XIO FROM BASIC

I AM trying to understand DOS 2.0 as my own working and some functions are installed.

I have written a small program in read in and FORGE the video buffer (version 1.0.400) digital or (breakdown) into memory.

Whenever I check that these values are in memory, using the memory monitor published in a past issue, they are all there and the Atari values are also correct.

When I call up DOS 2.0 the old values are there, but when I return to basic and call up the monitor, my values are the same ones which I have FORGE.

Is there something that I have missed, or is there a checktable which takes the values and then converts them back?

Another problem arises when I use the Micropage utility program. On the basic in Atari picture line in the screen, is the top half. Should

this happen?

An additional problem is that I am using a DOS-type utility program and one of the options is to go to DOS. This program is heavily protected, and I wish to keep it that way, but when I return from DOS it leaves the screen in basic, which I do not want.

Are there some FORGE's which will allow DOS to jump back to the start of my BASIC-machine code program?

— **Barry Fitzmaurice, Cornetbridge, Co. Antrim**

■ Your problem is being caused by the fact that there are two parts to the DOS system.

The first DOS SYS is held in memory permanently taking up about 8k. The second part, DUP SYS, is loaded in when you type DOS and contains all of the menu systems.

This means that every time you type DOS all of your FORGE conversions are being

overwritten as DUP SYS is loaded into ram again.

If you want to add the menu to the existing file's DUP SYS rather than FORGE, log into memory. Be careful not to increase the length of the file, as the machine code may be corrupted.

A Point picture is in Graphics 7 and a Microstate picture in Graphics 18.

As the only difference between the two is that Mode 7 points are twice the height of mode 18, once the screen memory for a mode 18 screen is twice as large as that for Mode 7.

So when you load a Mode 7 screen dump into a mode 18 display it only fills the top half.

There is no way of making a Basic program screen from the DOS menu, but why not write out the DOS menu completely and use XIO commands from basic instead? Nearly all DOS functions can be simulated in this way.

about the trying out of them — **B K Briggs, Mansfield, Bucks**

Emulating the others

MY son would like to know if it is possible to buy an emulator for the BBC Micro and/or Spectrum computers. If so, is it possible to load and save Basic programs for these computers on the Atari 13000?

Finally, can we obtain (and/or copy) the Atari 4000 video buffer (version 1.0.400) digital or (breakdown) into memory? — **P B Jakubowski, Leeds**

■ There are no BBC Micro or Spectrum emulators (except the thought). I for the Atari 13000.

If you want a more advanced version of Basic, look no further than Basic 8.0 from DOS. Contact one of the top mail order companies for

information.

If you want to run BBC Micro at Spectrum prices on the Atari, then the only solution is to write to the software houses concerned and push them into having Atari conversions written.

There is really no point in trying to implement Coded as a 4k or 8k system and there are not yet enough 13000s around to make it practical to write one for the 128k Atari.

Basically, Code was written with large mathematics in mind and is an extremely inefficient language at the best of times — and a waste of time and money at the worst.

You would be much better off buying a more micro-oriented language such as Action.

Coldestarts and Reads

PLEASE could you tell me the

FORGE command to switch the computer off and back on again? Also the command to do the system reset? — **Simon O'Hara, Mogres, Lincs**

■ Actually it is not quite that simple. There is no FORGE to turn the computer off — although there is a little switch at the back!

You can do what is called a coldstart, which means that the computer will clear everything from memory and start up again as though it had been turned off and back on again. This can be achieved by using

A = USIO(000000)
 Don't forget to save your program first, because it will be wiped out. You can make System Reset on the same thing by typing

FORGE 980,1
 We pointed some other methods for handling the System Reset button in the August 1988 Atari User. These allow you to run the program when Reset is pushed.

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November 1986

Atari ST User



**The ST
goes to
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Figures, figures -and statistics



FIGURES seem to feature high in the minds of Atari's UK management at this time of the year. Perhaps this has something to do with the sudden departure of Max Bamberidge and Roy Harding — we'll never know. But with Atari going public with 4.6 million shares at \$12 a throw, the income from the share sale will go a long way towards paying off Warners, plus a few million creditors. And still leave something to add to the £20 million Atari has left in the kitty worldwide.

When Jack Tramiel and family have done with Atari in the past 18 months is little short of amazing. They've taken the name and the 1984 sales of machines — one video games machine and two computers that reportedly cost twice as much to manufacture as they sold for — and brought out a whole new range of 68000 machines. On top of that, they've redesigned the 2600 game machine, the 400/500 series (now seen as the 65A1 and 130002) and made money on all their systems.

Since launching the 6205ST last July and the 1040ST in March of this year, Atari has shipped 160,000 ST units worldwide. As a rough guide 60,000 of these went to the US, 25,000 went to West Germany and the other 65,000 were sold to the rest of the world — which includes Britain.

That figure isn't too disappointing — despite Atari UK's initial target figure of 80,000 a month for Britain alone — especially when compared with Commodore's Amiga sales of less than 100,000 worldwide.

But remember we're talking about worldwide sales of the ST here. The widespread distribution of STs makes it a tough market for software publishers: it's hard to even identify good distribution, much less promote products effectively. But it's just good enough to take the ST seriously as a viable format, particularly given Atari's vague future product plans.

Remember that everybody was writing off Tramiel's Commodore in 1982 and 1983 when it was selling most of its computers in Europe. It is a safe bet that Tramiel will use Europe to build up his overseas sales so that Atari will be strong enough to take on the US mass merchandisers in earnest.

ATARI hasn't been sitting still in the new-product area. Last month the company introduced a two and four megabyte version of its ST computers and

the PCW Steyer in London, operating a fair number of its US enthusiasts as it did so. Maybe Tramiel unveiled the new machines in London as an indicator of the prestige he places in European sales. From what we hear from the US, these machines are still under development at Atari's research labs.

The company has great plans for the ST. Coming up at Comdex in the States will be several new ST-based packages, which is probably when we'll get our first peek at the higher-recovery machines in their full glory.

Real showstoppers will of course be the so-called ST units — ST aimed for Sixteen/Thirty-two bits, now TT stands for full Thirty-two/Thirty-two bits. Depending on the latest leaks and rumours from the States, the TT module will come in the form of a two-inch high box with built-in 2 1/2-inch drive, an integral disc, a breaker for a full-height hard disc, detached keyboard and single in-line memory modules, a la Apple Macintosh.

As yet it's unclear whether the company will have an enhanced ST with on-board better chip, or whether the new ST boxes will include the chip as standard.

Atari is also working on a Giga box, packaged in the same case as above, that will run the ST 68000 processor into a dedicated graphics unit and unlock the logic into its own 68020 (or even 68030) processor. Pricing? That's anyone's guess, but it's longer than the Unit box will set you back around the £200 mark, to which must be added £1,200 for a DME ST plus the cost of a suitable monochrome display unit. When that system becomes available (early 1987 maybe?), Atari will turn into a pretty competitive workstation manufacturer.

DON'T take any of the above as a guarantee of what's upcoming in the real Atari world. While most of these machines have been seen in prototype form, either by the show-going public or by US software houses, you never know what can happen with Jack Tramiel at the helm. By the way, don't expect Sig Hartmann to be pushing the new ST/TT machines — made word from Atari is that he's calling major companies and urging them to buy existing ST packages on corporate accounts rather than promoting the new machines.

**Steve
Gold
reporting**

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It's much faster with a blitter

Here are the definitive answers after which, as editors say, correspondence on this subject is closed.

Firstly Jon asks if it is possible to connect both monochrome and colour monitors to the ST at once? The problem is not simple. If you wish to have both monitors turned on, and thereby switch among all these screen modes at leisure, the answer is no.

When the ST is turned on it looks to see if a monochrome monitor is connected. If it is, it ignores the colour monitor and will only operate in high resolution mode.

You could have both monitors connected at once via a Y-socket connector and then turn on the one you wish to use at the time. This might work, but I find that it is probably simpler just to plug in the monitor you require and leave the other unconnected.

Next on Jon's list is a question relating to the Ask+Help method of producing screen dumps. For the best results the postscript file sitting on the Intel Printer desk accessory should be set to 800 dots.

Finally he asks if it is possible to connect a module to the ST models without one so you can use a TV. Although Atari will not offer the service I know of at least one company working on a solution. The cost is likely to be about £70 to £80. I'll keep you informed of progress.

Jeff Cusken from Northern Ireland asks if you can run IBM software on an ST. There are in fact two ways.

Firstly it is possible to buy a 5.25in disc drive from AST which allows you to read and write IBM format discs. This means you can load directly an ST program created on your IBM.

The other solution is to wait for the IBM emulator box which Atari is now developing. This will allow most IBM programs to run happily on an ST. Atari has yet to set a release date or price for the emulator, but my guess is that it will be released next spring for between £250 and £300.

Send your Atari ST queries to:
ANDREW BENNETT,
Atari ST User,
Europe House,
68 Chester Road,
Hazel Grove,
Stockport
SK7 5NY.

THE tremendous interest in the new blitter for the ST has been reflected in my mailing this month. A lot of you want to know exactly what the Line-A routines that the blitter's supposed to speed up actually do.

Well when the Atari software engineers were designing the ST they realised that before they could start work on GEM itself they would have to develop a set of very basic but powerful routines to do such simple things as plot a point, draw a line or fill a shape.

These routines were named the Line-A routines after the machine code instruction that calls them.

Every screen operation on the ST uses them. When GEM opens a window or the Word scrolls the screen the Line-A routines are being used. So with a blitter installed you will find a marked increase in speed of nearly all screen operations in software that uses these routines.

For only £89 the blitter represents a significant step forward in the ST specification and shows that Atari isn't going to sit back without developing the ST further.

Another common question from readers concerns the advent of the ST 3860 and 4160—should they trade in their old models or is there an upgrade?

By the time you read this Advanced Systems and Techniques (AST) will have memory boards available that increase the memory of your 520 to 280s and your 1040 to 4MB. These will leave some fitted by AST and should cost no more than the difference between the price of your current machine and the new models.

The only significant omission from an upgraded machine will be the lack of a blitter socket. This simply means that instead of buying the plug-in version of the blitter you will buy the add-in one. In fact AST should be able to fit a blitter chip at the same time as the upgrade.

Jon Bradbury from Sheffield asks three questions that have become ST "standards".

ST Hardware

My apologise to Catherine Rortney whose name was omitted from his excellent Line Patterns ST five-drive in the September issue of Atari ST User.

Write on the subject, keep sending in your five-drive problems and hints. They make fascinating reading.

Don't forget that as well as writing to one at the usual address I can be contacted through Phoenix box number 614558360 and at box 32 844 0307 on Telecom Gold or MicroLink.

MEGAMAX C: Best for the ATARI ST

Reviewed in ATARI User, September 1988 by Peter Knowles and Roger Wier.
 "You get a complete development system — everything necessary to produce commercial quality software is provided . . . Clearly, Megamax C compiles faster and produces much smaller files. These are great advantages, and may well prove to be the overriding consideration to many prospective buyers — together with its friendly front-end shell and complete manuals"

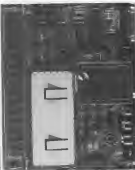
- Full K & R implementation
- Graphics shell
- Extensive library, float, single and double precision
- Easy access to all GEM resources such as DIALOGUE BOXES, ICONS, drop-down MENUS, GEMDOS, AES and VDI
- Labour saving single command MAKE to compile, link and run
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Program: Deep Space

Price: £29.99

*Supplier: Progress, Part of Liverpool Building,
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8122*

CALLING all Trekkies. While you're waiting for *Etre* to arrive, you might like to try your hand as a freelance intergalactic bounty hunter, in your instrument-rich *Star* fighter, in your instrument-rich *Star* fighter, you too could boldly go where no player has gone before.

Action starts in the *AI* files system, the least dangerous of five hostile star systems. Entry to each of the other progressively more perilous systems is gained by flying through the appropriate minefields — if you can find it.

The idea is to roam through space, earning credits by blasting enemy craft and taking prisoners.

The full-screen view is from the cockpit of your fighter which is controlled by a combination of mouse and joystick or keyboard. The easiest way is to use the joystick for steering and firing and the mouse for everything else.

The cockpit is lavish enough to make Captain Kirk like his phaser in arm. Among the technological paraphernalia at the top of the screen are a clock, energy readout, alert indicator and a small status display for system messages.

An array of controls is laid out along the bottom of the screen. In the middle is the console which has two moving parts — a speed lever for velocity and a control column for direction.

To the left is the ship's multi-purpose computer which, when switched on, opens a green display screen to appear. Information is shown on this when any of the six options have been selected — long range map, auto-scope, navigation computer, drones, communications and battle damage report.

The communications facility gives a more detailed version of any status messages. The drone option lets you order fuel, repairs and quick bombs from travelling drones provided you have enough credits.

Scope shows the position of the ship's auto-scope — for capturing aliens — in relation to nearby objects. The damage report is self-explanatory.

The long range map is a split-screen display, showing the view from above and behind your fighter. Various coloured dots indicate the position and identity of alien ships, drones, planets, starbases, and so on. A small cross on each of the split displays can be moved to set the course.

The navigation computer displays the distance to a set destination and a picture (best described as a series of nested squares) which must be kept lined up to stay on course.

Over to the right is a function pod. This lets you raise the viewing window without disturbing the course, look left, change weapons, set shields and fire your rockets.

Space graphics are out of this world



set shields and fire your rockets.

Finally, over to the far right is the short range scanner which slides up and can display the relative positions of any objects up to five magnitudes away.

There are a number of competent sound effects — engines, weapons, alarm signals and so on. What impressed me most about *Deep Space* were the spectacular solid 3D graphics, which are both colourful and fast.

Watching a chunky alien ship coming straight at you or flying around a planet and its moon really takes some beating for visual excitement.

While the game is certainly graphically stunning, it is also quite difficult to play mostly because of the implementation of the long range map. Trying to distinguish one particular dot of a particular colour from among the many swirling around on the small map screen makes course setting and navigation a bit of a nightmare.

And unlike most flight simulators, the joystick control has been implemented upside down. When you push forward on the stick the ship goes up instead of down — that takes some getting used to.

If you can master the navigational elements *Deep Space* will provide thrills and challenge for a good while to come. And those graphics really are out of this world.

Speed	*****
Graphics	*****
Playability	*****
Value for money	*****
Overall	*****

**Reviewed
by Bob
Chappell**





Animation excels in the Arena

Program: Arena

Price: £24.99

Distributor: Progressio, Part of Liverpool Building,

Parl Lane, Liverpool, L3 1BT Tel: 051-667 8120

THE usual drawback with athletics simulation programs is that the animation of the athletes often bears little resemblance to the real thing.

Not so with *Arena* — the graphics and animation are astounding: the most realistic you're likely to see this side of the Olympic Games. The detail and accuracy of the movements has to be seen to be believed. And the participants are no caricature representations either — these athletes are large size.

Arena features six different track and field events which may be played in any order — 100 metres, long jump, high jump, pole vault, shotput and javelin. Up to four players can take part — there are no computer-controlled contestants.

The competition takes place against the background of a well-filled stadium. Flags appear in the breeze and an occasional backslur-dad figure can be seen warming up in the distance. One or more earnestly dressed officials adorn the middle ground while the athletes stand ready in the foreground.

All events move from left to right over several screens — there is no scrolling. When the athlete or object (a javelin for example) reaches the right

hand side of the screen, the picture is instantly replaced by another showing entry from the left. While horizontal scrolling would have been most effective, this method works well enough.

Control of the athlete is accomplished by keyboard pounding — what a shame there's no joystick option. The keyboard is likely to take a lot of hammering and if there's too much frenzied pounding the ST keyboard is going to be a lot more expensive than buying another joystick.

Any one key from each of two different groups at either end of the keyboard must be hit alternately and quickly to build up the athlete's speed. Hitting the speaker at a crucial moment causes a further action, such as releasing the javelin.

In every event, points are scored for performance and only one player is ever on the track at a time. The player signals his readiness to start by clicking the mouse button.

In the 100 metres, the clock begins when the starter fires his pistol. Break too early and he fires again to signal a false start.

In the high jump and pole vault, the bar can be raised or lowered to any height within reason. Any foul up during the approach causes the red flag to be waved.

One unusual feature of the simulation is the use of speech bubbles. If the athlete is kept hanging around at the starting line, he will pass a comment. At the end of each attempt, the athlete and an odd-looking adjudicator who pops up both swap sarcastic remarks. Though these comments are fun at first, they eventually become wearisome. I'd have preferred an option to suppress them.

There are one or two small bugs. A ghost image of the pointer occasionally remains at the point where you last left it and there are spelling mistakes in the bubbles (for example, *apally* and *conced*). The viewer's gaze seems to have shrunk in the wash, too!

There are few sound effects but you'll hardly notice that. What will make you sit up is the excellence of the animation. *Arena* is good fun, especially if there are a few people playing.

Sound	7
Graphics	10
Playability	8
Value for money	8
Overall	8

**Reviewed
by Bob
Chappell**



THE BASIC INTERPRETER FOR THE ATARI ST.

A new and very fast BASIC interpreter ROM cartridge for the Atari ST computers. This 128K program has been written specifically for the Atari ST computers and enables full use of (and gives the programmer full access to) all the special features of this machine.

Based around BBC BASIC, but considerably extended, FAST BASIC is a modern structured programming language. It is the ideal environment for those who want to experiment with the ST and to find out about GEM and 68000 assembly too.

PEED

With an average PCW benchmark speed of 1.8 seconds, this is the fastest BASIC available faster than any other PCW have tested and compares with 14 for a normal BBC - two orders for other computers.

EDITOR

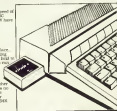
Fast GEM based word editor is included. Supports search and replace, cut, copy, paste and very fast scrolling, speeds. Multiple programs may be held in memory at once, and each program may have its own editing window and associated files.

PROGRAMMER

There is no limit to program size, more than available memory, and there is no speed degradation for running large programs as there is no memory image interpretation. Storage may be up to 64K long arrays may be over 64K.

ASSEMBLER

Similar in concept to BBC BASIC this allows mixing of assembly language and BASIC together. The assembler can assemble at only 50 000 lines per minute making it one of the fastest available. Macro and conditional assembly facilities combined with one of the best editors around make this a superior alternative to many dedicated assemblers.



STRUCTURED

Fast BASIC supports nested UNTIL, WHILE, REPEAT and until for IF THEN ELSE constructs. Also named procedures and functions and memory allocation ensure that FAST BASIC supports many of the best features of languages like PASCAL or C, but without the drawbacks.

GEM

Direct and full access to give to the ST graphics such as fonts, 600 per inch, filling etc. In addition there are a range of keywords for controlling the mouse, icons and windows. It is possible to write programs that present the user with a properly standard GEM type interface.

COMPARISONS

MACHINE	TIME
IBM AT	6.8
IBM PC	16.8
BBC B	14.8
AMSTRAD	14.7
SINCLAIR QL	15.6
COMMODORE 128	40.1
SPECTRUM	54.8
FAST BASIC	1.8

Review
It positively blows the socks out of structured programming will be well pleased.

Perhaps the most staggering advantage of Fast BASIC over the official language concerns using the various facilities offered by GEM.

It's a real improvement on Atari BASIC.

Popular Computing Monthly

FAST BASIC (S. LIDSON)

400K Cartridge. It runs on BASIC does not have to be loaded from ROM and offers instant start up.

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Product: Back-Pack
Price: £69.50
Supplier: Computer Concepts, Garsington Place,
 Oxford, Oxfordshire, OX4 2JG. Tel: 0442
 83993

ONE of the most useful features of the Atari ST's desktop is its ability to access accessory programs - from simple clocks to complete spreadsheets - from the desk menu.

There are two main constraints on their use. Firstly, only six can be on the desk menu at once. Secondly, memory can become in short supply if you use some of the more hungry accessories, especially in G20STs and STMs.

Back-Pack is a new desk accessory from Computer Concepts, which sets out to solve both of these problems while supplying the user with nine accessories. Back-Pack is supplied on a cartridge which simply plugs into the rear port on the side of the ST.

A small program which initiates the cartridge must be placed on your boot disc. Thereafter, choosing the Back-Pack option from the desk menu brings up a list of the nine accessories. Click on one of these and you're in that program.

The **Calculator** can operate in two modes. The scientific mode gives a full range of features from an 'on' and 'off' to factorial and reciprocal. In programmer mode, the calculator offers logical operations and bit shifting as well as the facility to look up the EBC code of the next key pressed.

The **Large Clock** offers time, date, dual time and up to four alarms with digital or analog display. The times and alarms are set by simply clicking on arrows which change the hours and

More on your desktop

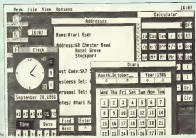


minutes. When an alarm goes off, a bell sounds and a relevant dialog is displayed. A press of the Escape key and the alarm turns off.

Another simpler clock is also available. The **Mini Clock** appears as a small window which you can move to any position on the screen.

When you select the **Glory**, the current month is displayed in calendar format. You then select the day that you wish to examine and click on it. The diary window will now show your chosen day. The times for the day are shown as half-hourly intervals. You can type in the various appointments for that day and then save them to disk for later reference. Twelve small icons at the side of the display represent various categories that a particular day might include, such as important letters, a birthday or a journey.

The **Notepad** can store up to 31 pages of text, which you can easily flip through and edit using a combination of mouse and keyboard. It can be stored on your boot disc, so that it is there



**Reviewed
by
Andrew
Bennett**

Back-Pack: The desktop in your pocket

ATARI ST

STREET POKER



Street Poker is a fast-paced, action-packed game that will keep you entertained for hours. The game is set in a seedy, underground poker den where you can test your skills against a variety of opponents. The graphics are top-notch, and the sound effects are fantastic. This is a must-have game for any Atari ST owner.

ST GOLF



ST Golf is a realistic golf simulation that allows you to experience the thrill of the game from the comfort of your home. The game features a variety of courses, clubs, and weather conditions. The graphics are stunning, and the sound effects are immersive. This is a must-have game for any golf enthusiast.

THAI BOXING

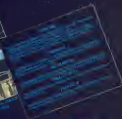


Thai Boxing is a fast-paced, action-packed game that will keep you entertained for hours. The game is set in a seedy, underground boxing den where you can test your skills against a variety of opponents. The graphics are top-notch, and the sound effects are fantastic. This is a must-have game for any Atari ST owner.

SHADE PILOT



Shade Pilot is a fast-paced, action-packed game that will keep you entertained for hours. The game is set in a seedy, underground pilot den where you can test your skills against a variety of opponents. The graphics are top-notch, and the sound effects are fantastic. This is a must-have game for any Atari ST owner.



ANCO

ANCO (ATARI NETWORK COMPANY) LTD. 17, BRISTOL AVENUE, CHICHESTER, SUSSEX PO19 1JH. Tel: 0243 771111. Fax: 0243 771112. E-mail: anco@compuserve.com



Fast Basic lives up to its name

Program: Fast ST Basic

Price: £89.95

Supplier: Computer Concepts, Clarendon Place, Rensel, Hampshire, Hants RG2 6BQ

IF you ask any new ST owner what their main complaint about the machine is, the chances are that they will say it is the Basic Atari provided. Not that the specification on paper is all that bad, but for a machine of this power most people were expecting something a little better. Add the fact that it is riddled with bugs and perhaps the complaint is justified.

Atari has made various promises about an improved version of its Basic, but I suspect that the ground has been cut from under it by the release of Computer Concepts' incredible Fast ST Basic.

Rather than attempting to follow Atari's strategy and install its Basic on the long-in-the-tooth Microsoft implementation, Computer Concepts has opted to base its new language on the latest structured Basic and has supplemented the with complete access to the Gerni functions previously only available via PEKER and FORKs.

The first thing you notice when opening the box is that Fast Basic comes in cartridge form instead of on disc. This has many advantages not the least of which are that it loads instantly, is more reliable and leaves much more available memory for your programs.

The cartridge appears as a special icon on the desktop — you can call up Fast Basic in the same way as you would a file from a disc.

Once Fast Basic is loaded you are confronted with the main display. This differs from Atari Basic in that there are only two main windows for the editor and the output.

All your programs are composed via the editor which features full mouse or cursor key control plus cut, copy, paste, search, replace and a whole host of other text manipulation and deletion commands.

The editor still falls into the same trap as Atari Basic — that of having long lines hidden under the right hand scroll bar. Perhaps it would have been better to have opted for a word processor type window where long lines wrap at the edge of the window rather than at the 80 column mark.

Text and graphics will normally be displayed in the output window although you can specify a working area anywhere on the screen — even

outside of the window or over the main bar.

There is in fact one other window you can use — invoked only if you call it from a pull-down menu — which allows you to enter direct commands. This method is quite a change from standard Basic where even program lines are entered in immediate mode but you can quickly adjust to it. It is certainly a lot faster and more efficient to work with than the constant window opening and closing you will be used to if you've tried to do anything serious with Atari Basic.

Since the cartridge format leaves so much free memory, Fast Basic makes the most of it by allowing you to have up to 10 programs resident at one time. These each have their own reddefinable icon on the desktop and may be called at will.

The default allocation is 32K per segment but you may increase or decrease that to suit each program in turn. You can thus allocate a large workspace to a small program that needs a lot of data and still not be wasteful with a large program that uses very little external data.

All the information, including the sort is stored with the program when you save it to disc.

Any segment may call another, and you can copy between segments with ease as the clipboard icon. The only limitation is that the segments cannot multitask — that is, only one segment can be running at a time.

Moving on to the language itself the most obvious thing is that the majority of Fast Basic programs do not have line numbers.

If you think about it, line numbers were introduced in the days before decent on-screen editors were available. Once you have full cut and paste editors they become a hindrance rather than an asset. You can use them but they will get more like labels than the sequenced line numbers you are used to.

Your programs can be extremely well structured. There are procedures with full parameter passing and local variables. WHILE/WEND loops, SWITCH/CASE, ENDSWITCH structures, IF/THEN/ELSE/ENDIF constructs and many others. Indeed the whole language syntax is based around the very peculiar BASIC Basic used in many schools around the country.

Variables may be of a wide variety of types — 8, 16 or 32 bit integer, single precision, decimal, double precision, decimal, string or arrays of any of the basic types.

You may also use indirect addressing instead

**André
Willey
reviews
Computer
Concepts'
Fast ST
and Basic
acclaims
it as a
winner**

of variables – removing the need for such commands as **PEEK** and **POKE**. Simply address an address or formula in curly brackets and it becomes a pointer to a memory location, which may be given or returned as any of the standard numeric formats.

Operations are equally well provided for, with all the normal math functions covered, plus bit shifting, bit logic, Boolean logic, integer division and MOD calculation.

Full double precision equivalents of functions such as **LOG**, **SIN**, **COS**, **SQR** and so on are provided, making double precision a much more useful mathematical tool.

However, any computer language is much more than this, and it's hard to know where to begin when describing the features in detail. The manual devotes over 320 of its 400-odd pages to the various commands, and I couldn't hope to cover them all here.

Needless to say, just about every command you could ever ask for is supplied, plus a good many others besides. There are commands for cursor movement, for drawing boxes, circles, ellipses, arcs and polygons and for fill and line patterns.

Others handle text font type, size, colour and direction setting as well as bit functions which will transfer any portion of memory or screen data to anywhere else, even altering the format of the data.

Timing functions such as **date** (**US** and **UK** format), **time** (**12** or **24** hour clock), real-time counters (in 200ths of a second intervals) are offered as are commands for disc directory, active drive count and folder creation.

Other commands cover file handling – random or serial byte or record access – including size and free disc space checking, using handling functions such **INDEX**, **LEFT**, **RIGHT**, **FORMAT** is more powerful version of the old **PRINT USING** command, mouse control and direction operations – the list goes on and on.

Of particular interest are some of the pseudo-variables used. These act like variables to your programs, but control much wider aspects of the machine.

They include **PHYSSIZE** and **LOGSIZE** which allow you to read or change the address used to generate the screen display and **SPRDATE** – the current system date. **SCREENWIDTH** and **SCREENHEIGHT** tell you the current screen coordinate range, and hence the current resolution.

There is also a set of commands to control the Gerni functions. With a little practice and knowledge of the workings of the Gerni interface you can create and manipulate pull-down menus and dialog boxes from Basic which will return their results directly to your program, to be dealt with accordingly.

Many examples of these functions are on the disc provided with the package. This is probably better as well, because the manual doesn't really go into much detail in these areas.

The manual's biggest failing is probably the

Item No	Actual time	IBM 8086	IBM 80486	System time	80386	80486	Fast 80486
1	3.02	1.04	1.4	4.0	3.0	0.85	0.148
2	8.68	2.52	10.5	8.1	2.3	3.05	0.62
3	18.68	3.52	18.2	20.1	5.7	8.95	1.058
4	22.14	7.84	30.0	19.0	5.8	7.0	1.44
5	26.74	8.0	31.0	20.0	6.4	8.81	1.87
6	39.74	18.62	33.0	32.0	10.3	14.8	2.886
7	60.88	23.8	51.0	71.0	16.2	21.75	4.19
8	62.1	50.14	118.0	240.0	28.2	11.44	3.384
Avg	74.67	18.78	34.0	64.6	9.4	8.27	1.804

Figure 1. Benchmark timings of various Basic languages (in seconds)

lack of explanation of object files, without which many of the Gerni-commands are almost useless. It tells us: "While the subject is not complicated, a thorough treatment of object files is beyond the scope of this manual."

However, a good look through the file file converter program on the demo disc will certainly help, since it is entirely controlled by a re-defined menu bar and the mouse, complete with file selector boxes.

While graphics were more than amply taken care of, I was a little disappointed with the sound control – the **DO SOUND** command is a joke when compared to the rest of the language.

It requires only one parameter – the address of a block of memory containing sound data which will be played in a background task.

The manual gives no documentation at all as to what each register does and there are no



direct commands for ADSP setting of the quality of the sound, though there is a **SEEP** and single note play command.

Following the **BBC Basic** tradition once again, Compucon Concepts has also included a full 68000 assembler. Basic variables and procedures can both be used with assembler, and a number of pseudo-ops are available. These include space reservation, include files and full control of output format and listing type. While not quite a macro assembler, it fulfils its function very well indeed. Once again the manual is lacking at this point and if you want to see the



Before you I certainly have to buy yourself a book on 68000 machine code.

However, features aside, the best is still to come. Fast ST Basic was called that for a reason — the execution speed is something that has to be seen to be believed. For example a FOR...NEXT loop from 1 to 1000 will execute in just over a tenth of a second!

And a ST Basic takes almost one full second to do the same job, and the 8 bit machine takes more than two seconds in comparison.

Spectrum takes four and a half seconds.

Figure 1 gives a complete rundown of the performances of different machines and Basic against that of Fast Basic, and as you will see it beats everything else by a factor of five.

For interest I have also included the benchmark times for the 8 bit Apple running OS8 + Basic XII, which as you can see improves its performance considerably.

In conclusion, if you own an ST — even if you are mainly a C or machine code programmer — you should have a copy of Fast ST Basic. Even the advanced users will appreciate the usefulness of being able to drop into a straightforward fast and reliable language for working out quick routines and manipulating data.

In fact I don't know of a Basic on any other machine which is so feature packed and yet still so easy to use. There didn't appear to be any hope to speak of, but the language is so vast and complex that only time will tell.

I did crash once while opening a window with the mouse, but that could have been due to my not having the cartridge inserted properly.

Computer Concepts has a real winner here — but wouldn't it have been so much better if Alan had provided us with something similar in the first place?



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EDWARD SHARK reports

WHICH is best: Atari or Commodore? That's the prime topic on many American bulletin boards at the moment with both 8 and 16 bit machines under the spotlight.

Firstly I should declare my interest: I'm a games programmer with long time experience on the Commodore 64 and more recently the Atari 8 bit and ST and frankly the Commodore 64 is not a superior machine to the Atari 800 as most salesmen would have you believe.

I used to try to persuade people considering a computer to buy a Commodore 64 instead of an Atari 800 because I believed the Commodore was a superior machine but since that time I have become very familiar with the 8 bit Atari and have found that for many applications they are far better than the C64.

If you need proof just go to the software department of your nearest computer shop and compare the products available for both machines: 80 to 90 per cent of the time the Atari version will be much better than the Commodore.

Even if the latter has room for improvement, the C64 version could not be as good as the Atari version due to the C64's in-built limitations.

On the 16 bit side Atari also has the edge: After nearly a year of sales for the ST and slightly less time for the Amiga we are seeing the ST leading the field despite the fact that

money.

This one factor dominates the competition and means that while the ST has sold and sold in the US, the Amiga has never quite shifted from the exotic holiday and vertical computer markets.

Don't take my word for it: take the recently issued report from Consumer Reports, the US equivalent of Which? the Consumers Association magazine. Consumer Reports has rated the Commodore Amiga and the Atari 520ST and found both machines to be 'easy to use and graphically dazzling'.

But which machine is best? Consumer Reports gives a slight edge

to the 520ST processor will but very much faster. Contrary to what many people think, the TT will be a co-processor unit which will fit into the 1040D machines.

In providing a dual processor environment for the ST, Atari has in many ways countered several advantages that the Amiga held. Coupled with the \$100 blitter upgrade, which will run ST graphics applications up to five times faster than a non-blittered ST, the TT co-processor unit will put the ST into the Amiga league, but at a much more sensible price.

This brings us to another interesting point: What about all those people who bought 520ST machines? Did to say the word is that they're getting left behind. The 520ST, as well as being the first ST to hit the streets, is being viewed simply as a base machine for the ST series. As such it was a non-expandable unit for not as easily expanded as later models in the range.

It is possible to expand the 520ST's memory with third party



to the ST for home and business users. The magazine notes that when compared to the Amiga, the ST is cheaper, has a colour display that is more-suited for text work and comes bundled with a better set of software packages.

On the other hand, Consumer Reports claims that the Amiga is more impressive technical attributes (extra colours, better animation, additional sound channels and higher speed) may make the computer more attractive to hobbyists. The isn't a view that I share, but only time will tell.

Now that we're all convinced that the ST is the best, let's have a look what's in store for us all in the upper echelons of the ST range. Most people's eyes are firmly focused on November of this year, when Atari is rumored to be launching the long-awaited TT range of 68030 machines.

The TT is based around the 68030 cpu which will perform tasks that the



memory upgrades but this leaves very little room inside the case for any further extras that Atari has up its corporate sleeves.

Therefore I'd advise those 520ST owners who wish to expand their machines with extra memory and the like to consider upgrading to at least the 1040ST as soon as possible before the second-hand value of the 520 drops too much.

And with that happy thought for all you Atari 520ST owners, I shall leave you for this month.



at first glance, the Amiga is a better machine.

While the Amiga is a wonderful machine and in certain departments superior to the ST (I wish you haven't at the back of it) it cannot match the ST in terms of sheer value for

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AMONG the many prominent Atari figures visiting the recent PCW show was Lesnard Thamiel, vice president in charge of software development. Andrew Barrett took the opportunity to get authoritative answers to the questions our readers have been asking.



Q One of the most exciting developments for the ST range has been the advent of the blitter. How exactly does it work?

A The blitter works by automatically speeding up the ST's Line-A routines by a factor of between three and five times. This means that all programs that use these routines, either directly or indirectly, will have faster graphics. A program can also check to see if there is a blitter installed in the ST and use it to move memory around much faster than is otherwise possible.

Q On the Amiga, the blitter can only move graphics memory: is there any such limit on the Atari blitter?

A No. There is no special graphics memory in the ST, therefore the blitter can operate on all memory whether it is being used for graphics or not. Theoretically it can move up to 1Mbyte of memory at any one time. The ST's upper limit of 4Mb of ram is the restriction.

Q How will the blitter be packaged?

A It will come in two forms. There's a version that will simply plug into the newer 1040 and the 1060 and 4150. It also comes ready to be soldered on to the back of one of the chips inside the older 1040s and the 1020. A new set of pins will be included in the price of around £70. Blitter wire fitting will have to be carried out by dealers.

Q There are rumours of a graphics chip in the works. What can you tell us about that?

A The graphics chip will offer extra graphics modes which will have a greatly increased colour range and offer higher resolutions. Like the blitter chip, it will be offered as a dealer-fittable upgrade.

Q How accurate is the talk of 1024 by 1024 resolution?

A Tramiel software...



A To talk of 1024 by 1024 is unrealistic. Any new graphics chip will offer resolutions in roughly the same 2 and 3 proportions as at present. The chip will supply new graphics modes on top of those already available. Programs will simply be able to check if the new chip is there and then use the new modes where applicable.

Q What can you say about Amy - the rumored monolith/synthesizer chip for the ST?

A Amy is a sound synthesizer chip which has capabilities as yet unseen on any chip. It was the first and last project started by the old Atari (pre-Tramiel) after the 80080. Atari set out to develop a custom chip of great complexity but had limited resources and poor development tools. The enthusiasm was brilliant but the early versions of the chips simply didn't work. When we took over Atari we saw Amy as an excellent potential product. We have sold the design to a company that I cannot name just yet and they are hoping to test the first working chips really soon.

Q When form will the 32 bit workstation take?

A It will be a co-processor unit which will simply attach to the ST to greater processing speeds will allow existing programs to operate much faster.

Q The 30Mb hard disk unit for the ST is now available. Originally it was supposed to be a 10Mb unit for around £500 - what happened?

A It simply wasn't possible to build a unit for that and user price.

Q At one time, Atari was criticised for its buying faulty 20MHz units and writing software to allow them to be used as 10MHz drives. What happened in that case?

A It simply didn't prove practical. We believe that £850 is a reasonable price to pay for a 20MHz drive.

Q What is the current state of the CD-ROM player for the ST?

A We still intend to sell a CD-ROM unit for the ST which will include an encyclopedia in the future when the end user price is low enough, about \$500.

Q Atari appears to be selling STs across the entire globe. Is any one area doing better than the others?

A I haven't got the exact figures, but probably our best sales are in Germany.

Q To clear up a point of much argument, what does ST actually stand for?

A It doesn't and never has stood for Sam Ternal. It stands for Stratus Thirty Two. It derives its name from the 68030 which is a 16/32 bit processor.

Q Is the new black and white monitor on the new/stand, the SM128, the new standard?

A Yes. The SM124 will no longer be made.

Q Do you intend to drop the 520ST, as Apple did with the 128k Macintosh?

A We have no intention to do so. We believe that 512k of memory is a good amount for a base machine.

Q Do you intend to include a modulator inside the 1040ST?

A We are constantly listening to the market place. If enough people want a modulator then we will strongly consider it. ■



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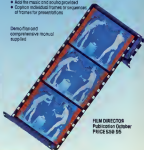
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THE Atari 520ST is an ideal computer for use with young children in primary school. Its power and open architecture have already made an impression in university departments but the ease of use and the friendliness of its programs make it a natural choice for schools.

The home environment is easy to understand and operate, and even the most inexperienced child can load programs, copy discs and generally manage the computer environment with virtually no help. The confidence they display reflects their new opinion of themselves as competent operators — they run the computer not the other way around. The computer becomes a tool to think and work with. Even playing with the colours in the control panel teaches them about the primary and complementary colour combinations. The mouse is vital for young children: its physical movement across the table helps them interact with the computer both physically and conceptually.

One school where Atari STs are in regular classroom use is Southmead Primary School in Shrewsbury. Here the children are already familiar with computers and each classroom has a room of its own as part of the basic equipment. The school is in a project set up by the Inner London Education Authority to explore the effect of computers on children's learning.

The children are familiar with the named educational computers such as the BBC Micro with its non-standard operating system and the RML ABC2 which uses CP/M. The latter is a good operating system but it has serious drawbacks for children as the commands are not easy to explain. Pressing it to copy the message is easy enough but if anything goes wrong the error messages resemble Asquith Quits. The children are continually asking what to do next or what went wrong. The better programs are menu

driven. These give the children the feeling they are in control of the computer but still the teacher is found leaning over the computer pressing a key to solve a problem that the children could not be expected to understand.

The delivery of an Atari 520ST changed the children's attitudes towards computers overnight. The first response was a physical one. The teacher would still lean over the group of children working on the computer, but now eagerly rose to prevent him intervening. The children had expectations and these included the possibility that they would be able to solve the problems without the teacher's help.

The independence was exactly what we had expected, but failed to get with the early computers in school. With the ST instead of asking their teachers for help, the children actively discouraged adult involvement, preferring to find solutions to the problems they encountered themselves. They soon began to use it to undertake all the normal tasks of copying files, running programs and saving unwanted information. Using the Sam environment made it possible to involve more children so these tasks were not reserved for the computer-monks alone.

The computer curriculum in primary school is already well defined. Programming in Logo, word processing and databases form the base of the work in the classroom. Specific educational programs do lead to topics and also serve to reinforce concepts but their use is declining. More and more schools are using the computer as a tool to extend the children's ability rather than to limit facts.

Included with the ST is a fine version of Logo. The children were disappointed when they discovered the screen was only black and white

Alan Coode describes how the ST is well suited to primary education



Left portraits by Deane. How the children are produced using computer images



The story unfolds in one of the booklets produced by Southern Cross

but they soon perked up when they saw how clear and sharp the images were. A lead was bought to link the ST to a Microvite colour monitor and Logo kept into colour. The sheer speed of the turtle as it roared around the screen amazed the children. It made the other versions of Logo on laser machines look positively snail-like. Logo programs were translated into QB Logo and tried out on the ST. The debugging process provided many hours of problem solving which the children relished.

Along with Logo, the bundled software included two programs which made the perfect package for primary aged children - DB Master, a simple yet powerful database program and 1st Word, a word processor.

Children are natural collectors - turn out any 10 year old's pockets and you will find a variety of 'useful' objects apparently not conforming to any predetermined need. Harnessing this primitive urge to collect and impose order provides many excellent opportunities for learning. However, collecting and entering data on a computer were as simple as putting bits of string and confetti into a 10 year old's pocket into educational benefit would come from it. Likewise if sorting the data and planning a database became such an intellectual exercise that children don't have the reservation to carry the task through, few children will benefit from using it.

Unfortunately databases have been either too simple to be of use to children, or so conceptually difficult that they have found them daunting rather than stimulating. What was needed was a database flexible enough to allow information to be entered in a child-like way but powerful enough to enable the children to find out worthwhile and relevant information.

DB Master fits this bill perfectly. The children understand what they are doing as the records are designed as pages. They can even use a

printout of a page to collect the raw data, filling in the boxes as they interview or collect. Searching the records for patterns is easy. The input provides the support young children need to enable them to think in a complex and abstract way. They can see where to put the information and more importantly what information is required.

At school there are databases on pond life designed and managed by the children. The numbers of all these lakes are tracked by the police. I have another child managed database. All the books the children read are entered and a reading record is presented to both teacher and child at the end of the year.

The children are now actively looking for what to record and what they can find out. This never happened with the database programs available on the RML or the BBC.

Writing using a computer opens a whole new horizon for children. It has been common practice in schools for a considerable time to get the children to make drafts of their work, starting with the rough draft, of ideas and culminating in a finished, copied-out piece of work subsequently 'published' or displayed. Although this helps the children to learn, it is laborious to copy out a draft of a piece (one and again, often for the sake of one or two mistakes. What is important is the process of review and this can be done effectively using the computer without the risk of making writing an onerous task.

One program has made writing on the Atari really different from writing on any other computer. Thunder from Batallas included a spell checker which checks the words as they are entered. It works with any Gam-based program and lets the children use the words they need without worrying about the spelling. This helps them improve their written expression while they



learn to spell by seeing the correctly-spelt words presented as they make an error. The program is large and is able to present a range of different words. Selecting the correct one means the children have to recognise the correct spelling which helps them learn to spell in the most effective manner possible.

Desktop publishing is a growth area in business computing. There is no doubt that it would fulfil a real and useful purpose in any school but the drawbacks in price. Systems can cost as much as £5000 and this is well outside the budget of most schools.

Producing newspapers and magazines provides vital information for parents and gives children a real reason for writing. The ST with the addition of a photocopier - laser printers are still too expensive - gives the children and teachers at Southmead a simple publishing system. The writing is undertaken using 1st Word printed out on a dot matrix printer and the titles added using Degas. The cut and paste process does depend on teachers' skill and time but the finished effect is quite professional.

The children produce a weekly school newspaper full of information and local news. Notes home to the parents are designed and written by the teachers on the ST, and the head produces the governors' report and the school bulletin. One group of children wrote and illustrated stories which were then printed out and the pictures coloured. They were sold in the local children's bookshop.

No doubt the future will see laser printers and more complete software in schools but the ST with its high resolution screen offers enormous advantages over the normal school monitors for performance.

It is only when you see children using programs such as Degas to produce exciting artwork that you realise the patience they had when they had only the cursor controlled drawing programs on the RML 4802. The pictures they produce using Degas reflect their confidence and soon postcards become illustrations mounted on the wall or stuck into books.

Using the mirrors to reflect the picture teaches them more about symmetry than any number of work cards. Geometric shapes and number sources are drawn and school notices have been transformed.

A new program, Make It Move, allows the children to take pictures from Degas and animate them - a poor man's Channel 4 graphics system. Items picked out can be made to zoom, fade or move across the screen. Make It Move uses icons to help the children prepare a script. The end result is entertaining and adds the dimension of movement to their drawings.

Children are interested in computers. Teachers recognise this and know that the curriculum will be radically altered in the near future by this new technology. The children starting school today will when they leave full time education enter a very different world - but attitudes will need to change. Too much time is spent using computers in school for their tasks. Simple programs which don't extend or stretch the child's imagination or intellect are all too common.

The proliferation of these programs stems from two sources. When computers were introduced teachers were encouraged to think that they should program the machines themselves. This led them up to a point where teachers have produced fine simulation-type programs - but teaching is a full time occupation. Many of the programs written by teachers for use in their own classrooms were snapped up by publishers and distributed to an audience for which they were neither intended or suited.

Also the machines available when the Government decided to put them into schools were not as sophisticated as the ST, nor had they enough memory to allow the programmer to provide the simple interface vital if the child is to use the machine effectively. As a result programs which were easy to explain and simple to run were preferred to those which could extend and educate. These two factors mean that computers, perhaps the most exciting tool for education since the book, are being used all too frequently to reinforce impoverished educational theories.

In many ways school computing is only just beginning. Now the Atari ST is available. The domination of the BBC Micro and RML has led to a lot of software being developed and this represents a considerable investment for schools. Adopting a new machine often means buying new software. However, a complete BBC Micro environment has been developed for the ST. This will be attractive to schools with a lot of BBC software. The Atari ST strength is not, however, as a localities. It offers a complete new experience for children at school but it is also adaptable enough to incorporate the best of the previous machines. Just as it took over this year's Personal Computer World Show so it will begin to dominate educational computing and give children real computer power.



More action from the Southmead pupils



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520ST packages are available in three different configurations. All packages include the 520ST computer, a 100MB hard disk, a 1.44MB floppy disk, a keyboard, a mouse, and a 15" monitor. The packages are priced as follows:

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- 520ST Package 3: £549.99

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The Atari ST is the perfect computer for business. It is fast, reliable, and easy to use. It can handle all your business needs, from word processing to spreadsheets. The Atari ST is the only computer that can do it all. It is the most powerful and versatile computer in the world. It is the only computer that can handle all your business needs. It is the most powerful and versatile computer in the world. It is the only computer that can handle all your business needs. It is the most powerful and versatile computer in the world.

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We are giving away a selection of free software with every Atari ST computer. This includes a word processor, a spreadsheet, a database, and a graphics package. The software is available in both English and French. It is the perfect way to get started with your new Atari ST computer. It is the most powerful and versatile computer in the world. It is the only computer that can handle all your business needs. It is the most powerful and versatile computer in the world.

ST NEWSLETTER

3 PAGES OF INFORMATION TO HELP YOU TO DECIDE RETURN THE COUPON FOR A FREE COPY

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The 1040ST-F is the most powerful and versatile Atari ST computer. It has a 1024K RAM, a 100MB hard disk, and a 1.44MB floppy disk. It is the perfect computer for business and home use. It is the most powerful and versatile computer in the world. It is the only computer that can handle all your business needs. It is the most powerful and versatile computer in the world.

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We promise to match the price of any Atari ST computer that you find elsewhere. If you find a better price, we will match it. This is our way of ensuring that you get the best price for your Atari ST computer. It is the most powerful and versatile computer in the world. It is the only computer that can handle all your business needs. It is the most powerful and versatile computer in the world.

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The 1Mb 1040STF

This is the state of the art 16/32 bit technology at an unbeatable price. The American magazine 'Byte' commented, "for some time to come the 1040STF will be the clear leader in price/performance."

As for software, the doubting Thomas should simply take a look at our latest software catalogue. And bear in mind too that the 1040STF will also run software written on several other operating

systems, including CPM.

The grand total is something over 600 software titles covering all categories — accounts, programming languages, word processors, communications, graphics, CAD/CAM and scores of vertical applications.

The 1040STF, with Cmm, mouse-driven icon and window presentation, makes the software fast to use and easy to store. The titles are also economical to buy.

40STF lacks software, wants to prove him wrong.



The 40STF has a 1024K RAM integral 1M double-sided 3½" disk drive, two-button mouse and built-in power supply. Basic and Logo programming languages, graphics programme and word processor complete the package.

With 12" monochrome monitor, we recommend it at £1699 excluding VAT, saving you at least £1600 against its nearest rival.

The price of our 14" colour system is a remarkably low £999 excluding VAT.

Prove the sceptics wrong. Find out about the

Atari 40STF and its software for yourself. For the name of your nearest dealer, ring Teledata on 01-200 0300.

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If you've written any useful or interesting five-line programs in either Basic or Logo, why not send them in to our five-liners section for ST owners?

We pay £25 for each one published. Simply send a copy

on also along with a clear listing and good explanatory notes to:

ST Five-Liners, Atsui Deer, Europe House, 68 Chester Road, Hazel Grove, Stockport SK7 5WY.

PRIME numbers have had a fascination for man since before the first simple abacus was invented. This ST five-liner will ask you for the first number.

It will then display all of the prime numbers between two and that number.

Line Breakdown

- 10 Requests the maximum number for prime
- 20 Sets up the two loops to check each number to see if it is prime
- 30 Checks for the prime number
- 40 Prints out the prime numbers
- 50 Loops back to line 20

Prime number generator

from
CHI-YEUNG CHOY

```
10 INPUT "ENTER MAXIMUM LIMIT FOR PRIME NUMBERS ";P
20 FOR N=2 TO P: FOR M=2 TO INT(SQR(N))
30 IF N/M=INT(N/M) THEN GOTO 50
40 NEXT M: PRINT N;
50 NEXT N
```

Floating point fixer

from
JIM TAYLOR

THE ST e Basic has several bugs and inconsistencies, some of which lie in the area of mathematics. If you have ever tried to use floating point mathematics you will have seen the problem.

Even simple operations such as addition and multiplication can produce unexpected results.

This five-liner is a demonstration of how to work around these difficulties and how to use floating point maths accurately to two significant fig-

ures, but using string variables to store the numbers.

Line Breakdown

- 10 Inputs a value for V and converts it into a string
- 20 Separates the decimal from the integer part of V
- 30 Tests for a rounding error and corrects the problem
- 40 Places the decimal part into string D
- 50 Prints out the corrected number

```
10 INPUT "V=";V:LEFT$(STR$(V),1):V=ABS(V):L=INT(V):D=V-L:ABS(L)=INT(L)+20
20 L=STR$(L):L=RIGHT$(L,LEN(L)-1):D=MID$(STR$(D),2,7)
30 IF D<".01" THEN D="".00:GOTO 50
40 IF D<".1" THEN D=D+.00:D="".0+MID$(STR$(D),2,1)
50 V=L+D:PRINT V
```



Following the unprecedented success of *Endspace*, Progress are pleased to announce the launch of two new products for the colour versions of the Alien 87 and the 512s Amiga.

DEEP SPACE



The ultimate interstellar war game. A full 800k of machine code harnessing the raw power of the 68000 processor to bring unique 3D solid graphics to the microcomputer. A unique overview of the future in search for wealth, glory in awesome fighting machine, travel star systems looking for adventure... the experience of deepspace.

A R E N A



The latest sports emulation. Honour, competition and multi-gymnastics enhance what can only be described as graphics of unsurpassed realism. Become an athlete, compete in your favourite, only the most skilled will ultimately win. No other product has managed to capture the 68000 processor to achieve the level of graphical sophistication.



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